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OPHTHALMOLOGY AS A CAREER

CHAIRMAN'S ADDRESS

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BOSTON

The only hazardous duty connected with the chairmanship of this section is that of making an address. If in attempting to fulfil this obligation I add to the satisfaction with which the veterans among us look back on their careers, if in some measure I inspire the younger ophthalmologists to continue their good work with increased enthusiasm and if I persuade some hesitating embryo ophthalmologist to emerge, I shall feel that I have not entirely failed in my task.

What were the chief motives that originally induced us to take up the practice of ophthalmology? Some of us have been influenced chiefly by the fact that it permits an easier life than general practice, especially in its relative freedom from night duty. Some have been influenced mainly by a dearth of competent ophthalmologists in our communities, others by the high example set by ophthalmologists with whom we were acquainted. A few have studied medicine and ophthalmology as a result of interest aroused by experience as opticians, and a few, no doubt, have been influenced by the mistaken idea that ophthalmology is a sure road to wealth. Still others have followed in the footsteps of their fathers, and judging by their success it would seem that an excellent way to become a great ophthalmologist is to select an eminent ophthalmologist for a father. In my own case, at about the age of 12 years I came to the decision to become an ophthalmologist and have ever since adhered to it. It was brought about by the interest in optics aroused in me by a photographic camera presented by my parents.

After our initiation into ophthalmology we soon learned that there are many considerations of far greater importance to influence us, and it has been these that have kept us steadfast in our careers. Of these the relief of blindness, or impending blindness, is probably the most impelling. It seems to me there can be no greater satisfaction in life than that which comes to the ophthalmic surgeon when he restores the sight of a blind man by a well executed operation for cataract. To be sure, as I have remarked elsewhere, this satisfaction is somewhat dimmed when, as occasionally happens, the patient gives the entire credit to God.

To many, one of the most attractive features of ophthalmology lies in its far-reaching relationship to many other sciences. To attain perfection in ophthalmology would require intimate knowledge of all other branches of medicine and also of mathematics, physics, chemistry and biology—something impossible of attainment by any single person. However, knowledge as complete as possible in any one of these subjects adds tremendously to the understanding and interest of the ophthalmologist. To exemplify the wide ramifications of this science let us consider, for instance, the histology of the eye. The eye and its adnexa contain representatives or analogs of almost all the tissues of the body other than the viscera. In the retina, for instance, the brain is represented, and to bring out its structure one must utilize the staining methods employed in the study of the brain. The exquisite rods and cones, the analogs of the ependymal cells, inspire one to investigate their structure and to try to ascertain by experimental methods how they are able to generate visual impulses as a response to light, a problem still unsolved.

To those imbued with the spirit of investigation ophthalmology offers many attractions. A well equipped laboratory is not essential. Important discoveries may be made by correctly interpreting the experiments made by nature in clinical cases. Operative work may legitimately be made a rich field for experimentation, if the surgeon will resolve never to perform on a patient any operation to which he would not himself submit under the existing circumstances. Although usually not at once obvious, the discovery of a single new fact, an improvement in operative technic, the devising of a new instrument and an improved method of treatment are each far more important than the results obtained in individual cases in routine work. For contributions to science benefit not only the present but future generations all over the world. To those who desire to devote themselves exclusively to research, ophthalmology, through endowed institutions, is now offering greater opportunities than at any time in the past, and these no doubt will steadily increase. As regards problems for investigation, they are innumerable, for as in the case of any other division of medical science there is no subject the knowledge of which does not need to be extended, and there are many subjects about which almost nothing is known.

Ophthalmic surgery to most ophthalmologists is the most fascinating part of their work, not only because it so often yields prompt and brilliant results, but because it requires the exercise of great skill and discriminating judgment. The manipulations are more delicate than those of the general surgeon and decidedly different from those of the otolaryngologic surgeon. It has been my observation that an operator can seldom be equally skilful in both ophthalmic and otolaryngologic surgery. Lack of natural dexterity is a handicap to the ophthalmic surgeon that is difficult to overcome. Ophthalmic surgery like all other forms of surgery has its dark side, namely, its catastrophes.

Read before the Section on Ophthalmology at the Eighty-Fourth Annual Session of the American Medical Association, Milwaukee, June 14, 1933.

Some of these are unavoidable, others are due to mistakes which we later sadly realize we could have avoided. Fortunately they are infrequent, but they tend to keep us humble. The general surgeon has an advantage in this connection over the ophthalmic surgeon in that a dead man tells no tales, whereas a blind man usually not only has the power of speech but walks the streets as a horrible example.

A fundamental knowledge of pathologic anatomy is essential for the most efficient work in all branches of medical science, and the specialist should have in addition an intimate knowledge of pathologic problems relating particularly to his work. The internist and the general surgeon are seldom able to continue actively the study of pathology because of the time-consuming and tedious nature of their work. It should be possible, however, for every ophthalmologist to continue the study of ocular pathology throughout his career. To me, the point of view of pathologic histology has been extremely helpful in clinical work. I have in all cases attempted to visualize conditions of disease as I have seen them under the microscope. I am aware that there are many able ophthalmologists who are utterly lacking in first-hand knowledge of pathologic anatomy, but I feel sure that such knowledge would have added to their efficiency. Our beloved Fuchs was an illustrious example of those who have correlated clinical and histopathologic observations, and his disciples in this country are doing him great credit.

A knowledge of psychology is useful to the ophthalmologist in many ways, for instance in the determination of refractive errors, in operative work and in making explanations to patients. Since the average patient has not the slightest conception of optics or of the structure of the eye, it is a difficult matter to fit any explanation of his ocular condition to his point of view. There are ophthalmologists, however, whose ability is so great in this respect that they excite the envy of their colleagues. The term "strain" applied to the eye as a whole or to any of its parts is a great asset to us. To the patient it has a definite and satisfying meaning, but to the doctor who employs it, it is almost if not quite meaningless, so that by its use he does not really commit himself in any way.

The ophthalmologist has many great men to revere and emulate, who have established the foundations of his science. Notable among them are Young, Helmholtz, von Graefe, Donders, Arlt, Snellen, Bowman, Fuchs, Haab, Axenfeld and Gullstrand. He has three national societies and usually a local ophthalmologic society, memberships in which give him a spirit of comradeship with his colleagues and add zest to his life work. The national societies differ in character. The American Ophthalmological Society may be regarded as the aristocrat, for it seeks to limit its membership to outstanding men with the highest ethical standards. It has the distinction of being in this country the oldest medical society devoted to a specialty. The American Academy of Ophthalmology and Otolaryngology was primarily organized to serve those who combine the practices of ophthalmology and otolaryngology. It has instituted many innovations in the conduct of its meetings which have been highly appreciated by its members. Through its initiative was established the department of ophthalmic pathology at the Army Medical Museum. This, to some extent, has reduced the appalling waste of valuable pathologic material in this country. The Section on Ophthalmology of the American Medical Association is the democratic ophthalmologic society of the country, for its only requirement for membership is membership in the parent society. Its transactions contain some of the best papers relating to the eye. They also, as would be expected, contain some of the worst. The three national ophthalmologic societies are in no sense antagonistic, but on the contrary, are highly cooperative. Through their cooperation was established the American Board for Ophthalmic Examinations, the first institution of its kind.

There are a few features of ophthalmologic practice that at the present time are relatively unsatisfactory. One of these is the unduly high proportion of cases in which the only requirement is the correction of refractive errors. Many of the younger ophthalmologists have so few cases of ocular disease in private practice that they are unable to acquire adequate experience in diagnosis and treatment and are unable to perfect themselves in operative work. Those who are fortunate enough to be connected with a large ophthalmic hospital are less at a disadvantage in these respects. Refraction is, of course, an important branch of ophthalmology, presents interesting problems and still offers opportunity to those with ingenuity to devise new methods and instruments. Every patient is entitled to have the optical system of each eye corrected, if possible so as to make it equal or superior in resolving power to that of the retina and brain. But in my opinion the importance of errors of refraction has been and still is greatly exaggerated. It was natural that toward the end of the previous century, soon after their importance had begun to be realized, the pendulum should swing too far. I can recall at least one eminent ophthalmologist in this country who maintained that errors of refraction could even cause choroiditis. In time the ophthalmologists so thoroughly impressed the public with their enthusiasm that now there are few who do not believe that incorrect glasses are a menace to the integrity of the eyes. Needless to say, the optical trade has not been slow to take advantage of this situation.

The advent of the optometrists has lightened the burden of the ophthalmologists, but has raised a problem so far as the public is concerned. For no one with ordinary common sense would desire to place himself in the hands of an optometrist if he was aware that the latter was not qualified to make a complete examination of the eye. It is human nature not to admit ignorance, and for this reason, many optometrists lead their "patients" to believe that there is little concerning the eye that they do not know. Their use of the title "doctor" adds to the deception. The more intelligent of the optometrists naturally enough aspire to learn something about ocular disease and sometimes acquire sufficient knowledge of the subject to exemplify the old adage "A little knowledge is a dangerous thing." If the optometrists as a group continue in such aspirations there will soon be in their stead half-baked or more likely quarter-baked ophthalmologists. This will certainly not solve the problem. It cannot be fully solved by attempting to increase the number of competent ophthalmologists because, as already indicated, the latter cannot remain competent if they have too large a proportion of patients who simply require glasses. Perhaps it could be solved if it were possible for ophthalmologists and optometrists to cooperate, but under present conditions this seems to be impossible.

It seems to me an open question whether or not the licensing of physicians is in the best interests of the

public. Possibly if the practice of medicine were unrestricted and patients had to rely on their own judgment as to the selection of those best qualified to care for their ills, they would become educated to make better selections than they do now. Certainly from among homeopaths, osteopaths, chiropractors, etc., and even from among the regular medical professions, the law does not make it impossible for the public to select a multitude of quacks. However this may be, licensing boards are apparently here to stay, and this being the case, logically they should require additional qualifications for specialists. In ophthalmology the need of further requirements is particularly obvious. At present any licensed physician may treat diseases of the eye and even proclaim himself an eye specialist, however inadequate his training in ophthalmology may have been. Most of us here have seen many cases in which actual loss of sight has resulted from improper treatment by physicians untrained in ophthalmology. The remedy for this condition would seem to be already at hand in the American Board for Ophthalmic Examinations, but thus far it has not been utilized by licensing boards.

To attain success in ophthalmology what is the best path to follow? It is impossible to answer this question categorically. For success does not have the same meaning for every one, and whatever this meaning may be there are many paths to it, no one of which is equally suitable for all travelers or ever reaches the ultimate goal, perfection. In this country, however, the tendency seems to be to direct all would-be ophthalmologists along the same path. After completing the usual courses in college and medical school, the student is to take an internship in a general hospital and then in a special hospital. This yields products of good average quality but not sufficiently often of the highest quality. It seems to me that radical departures from this standardized method of making an ophthalmologist should be permissible. These could begin even in preparatory school, where for instance, Latin and Greek might oftentimes be sacrified for French and German. In college the major studies should be mathematics, physics, chemistry and biology, with especial emphasis on any one of these in which the student shows unusual aptitude. In medical school, he should interest himself particularly in those subdivisions that are most closely related to the eye: for instance, in anatomy and histology, the head and nervous system; in physiology, vision.

After medical school, in my opinion, an internship in a general hospital is not desirable, for while in such a service, especially if it is of the rotating variety, much can be learned of value to an ophthalmologist, this is acquired at an expenditure of time and energy that could be more profitably employed in other ways. Moreover, the drudgery of the routine work leaves too little time for original thinking just at the time of life when this should be cultivated. It seems to me that a better plan is for the study of ophthalmology to begin immediately after completion of the general medical course and for this to be combined with further study of various medical subjects. Thus the student could attend eye clinics two or three times weekly in an ophthalmic hospital, mornings or afternoons, as the case might be, and spend much of his remaining time in the outpatient clinics of a general hospital. In the latter he would gain familiarity with conditions of general disease under circumstances that he would be most apt to encounter in his future ophthalmologic work. According to his inclinations the student could emphasize the study of certain branches, such as neurology or dermatology. An excellent alternative to the foregoing plan is for the student to obtain a part-time teaching position in pathology, bacteriology or physiology. This would give him a knowledge of the fundamentals of medical science that he could obtain in no other way, and permit him during the same period also to pursue the study of ophthalmology to some extent. During this time he could also study ophthalmic pathology or physiologic optics.

After occupying himself in this way for at least six months the student reaches the stage where he must for a time concentrate his energies almost exclusively on the study of clinical ophthalmology. Under present conditions it is best for him now to obtain if possible an internship in an ophthalmic hospital. A large hospital should be selected in which the members of the staff give instruction to the interns. If the student fails to obtain such an internship, a good plan is for him to take a postgraduate course in ophthalmology in some medical school and then become a volunteer assistant in the clinic of an ophthalmic hospital. It has been my observation that it is possible for a man with little preliminary training to become an excellent ophthalmologist, even after he has attained the age of 40, by following the work of a large ophthalmic hospital for a year or more, especially if he attaches himself to one of the leading members of the staff. This amounts to the old apprentice system, and proves that the latter is still not without merit. If the student can afford the time and expense, it is advantageous for him to spend several months abroad before beginning private practice, visiting the important eye clinics and taking courses in one or more of them.

The student is now a full-fledged ophthalmologist, ready to begin practice, if he so desires. For those few to whom that makes no appeal, I can imagine no more satisfactory life than that devoted to clinical and research work in some large ophthalmic hospital. For such, a few full-time salaried positions have been established. Generally speaking, I do not believe that full-time positions are in the best interests either of the incumbents or of the public at large, for they place the former entirely at the mercy of boards of trustees and deprive patients not eligible for charity of the services of some of the best trained ophthalmologists. In the interests of ophthalmic research also it seems to me preferable to have a large number of part-time rather than a small number of full-time workers. However, no fixed rule should be adopted in regard to this matter. Positions should be fitted to the available men.

As to the best way to acquire a private practice I have made little study, and therefore do not feel qualified to express an opinion. I have observed, however, the ruin of the scientific careers of several young ophthalmologists by the early attainment of lucrative practices. I have also observed that in the effort to acquire private practice the young ophthalmologist is apt to dissipate his energies by connecting himself with too many hospitals. A clinical position in one first-class ophthalmic hospital, a consulting position in a general hospital and perhaps a teaching position in a medical school should be sufficient, and will allow him time to read, think and investigate. As regards pecuniary rewards, ophthalmology offers ample opportunities. These are, however, less than those of otolaryngology and far less than those of general surgery. As already

intimated, those whose chief ambition is to acquire great wealth should not enter the field of ophthalmology.

To those on the threshold of ophthalmology, especially if they have inferiority complexes, what I have said regarding the education of an ophthalmologist may seem discouraging. To such I would point out that the chief qualifications that make for a successful career in this specialty are common sense, industry, some degree of manual dexterity and a thorough foundation in the basic facts of this science. With these, efficient service can be given to the public. Without these, the candidate should knock at some other door. With a knowledge of basic facts, acquaintance with unusual conditions is not essential. By basic facts I mean, for instance, those related to glaucoma, iritis, cataract, ocular tuberculosis, ocular syphilis, ulcus serpens and errors of refraction. Acquaintance with unusual conditions is not essential because they occur so rarely that ignorance in regard to them is of relatively slight consequence to the public. Moreover, as a rule so little is known regarding their treatment that common sense alone is the best guide. Those who have a considerable degree of familiarity with rare cases are apt to regard all cases as unusual. Here again common sense is a great help. The safest plan is to regard no case as unusual until it is without question proved to be so. Of course, all cases are unusual in the sense that no two cases are exactly alike, but the similarity of cases of the same general nature is far more remarkable than their dissimilarity. Before making a diagnosis, however, it is always well to bear in mind the old saying, "All is not gold that glitters."

If any sort of life is worth living one devoted to ophthalmology surely is. It seems to me the greatest tribute any one can pay to his profession is to say that if he had his life to live over, his choice of a life work would remain unchanged. This tribute I pay to ophthalmology.

THE MAKING OF A PRACTITIONER

THE SEVENTH ALPHA OMEGA ALPHA ANNUAL LECTURE

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This is a society of honors undergraduates. It originated from a desire to cultivate the ideals of medicine in practice and research, to foster those qualities in the younger aspirants which enable them, as your motto states, "To become worthy to serve the suffering." It is this motto which tempts me to take advantage of my opportunity and discuss as my theme some of the vexing problems in medical education which aim at this joint ideal.

We live in the environment of a machine age. We are, I fear, slaves to systems of efficiency—to methods of medical training which impel us to turn out doctors by mass production. The student is nursed along, he is instructed, he is spoon fed to such an extent that he acquires the habit of mind which is apt to throw the responsibility for his education on the teacher.

Ready-made knowledge is like ready-made shoes or a second-hand coat, neither becoming to the wearer nor expressing the individuality of its possessor.

Read at the annual meeting of the Alpha Omega Alpha, Milwaukee, June 15, 1933.

In other words, we on this continent suffer from what my friend Professor Fred Clarke designates "externalism." For everything we do in life we call on "George." The patient, for example, who, through his own indiscretions in work or play has made a mess of his life, consults the doctor, who must now assume the responsibility of setting him right—the invalid expecting the magician to effect a cure. So also countries institute laws of prohibition, expecting the government to assume the control of their morals, forgetting the while that morality comes from within. No! We cannot wire a twilight world for incandescent goodness.

Some features of medical education on this continent are not dissimilar. Even long before he enters the medical school the student is under control of the machine—the system—the gadgeteer, if you will, who, sitting at the switch, determines how in a more or less uniform system the lad shall conduct his career of study; occasionally a plug is pulled out here or inserted there, altering only in minor ways the direction of the current.

In most of our medical schools, students are admitted on a plan so well defined that they progress from one year to another as in school. The facts are instilled into them in courses, and at the end of each a successful examination permits them to proceed to the next course or year to accumulate more facts. I would submit that, for the most part, this is instruction but is not education—there is a difference.

This inadequacy of our academic program has been the subject of adverse criticism for many years. We are, I hope, improving, but the recent Commission on Medical Education leaves no doubt in our minds that much remains to be done. The criticisms seem justified. And yet in our own country, and even more so in your great republic—thanks to generous foundations and individuals—the facilities, equipment and opportunities never were better. Scientific progress has gathered strength with amazing rapidity. A previous generation would have stood aghast at the achievement of the present century on behalf of the diagnosis and cure of disease. Measure as we may the progress of the world in other sciences, in the arts or in sociology, and there is no single achievement which can compare with the decrease in physical suffering in man, woman and child.

In education, as in so many other things, we are apt, I think, to pin our salvation on technic, for we live, as I said, in the environment of an age of efficiency. Instead of forcing the vital effort of discovery in the pupil, he is crammed to the full with facts, many of which he has no interest to learn, because the interest has not been instilled into him. It is the easier method. A full and new menu is provided, and he bites off a piece here and a piece there, rejecting what he does not like. This too happens not alone in the schools but even in our universities, so that many a student on this continent enters on his medical studies intellectually immature, necessitating a still further scholastic type of education.

In this era of standardization, mass production in medicine, as in material things, has become the vogue, if not the necessity. This implies organization, which, in turn, calls for suitable equipment, each year more elaborate; every addition to the equipment and buildings demands an increase in personnel and in expense. This wholesale production is, apparently, not an urgent need. The profession is said to be overfilled. We have

now come to a limitation of the numbers admitted to the medical schools, and—if I am correctly informed—the numbers will be still more limited in the future.

The only possible excuse—other than state control—for taking on more students than are required must be a financial one—they must pay for the extravagance in equipment. Is it not, perhaps, for this reason that medical and other education has become such an enormous burden on the student and on the community?

Not only is our medical education expensive, but it is prolonged; and the longer it is, the more expensive it becomes. It is a vicious circle, and the machine continues to revolve, producing graduates by the thousands. In this formidable effort, a decade passes before the aspirant can satisfy his desire to qualify for his life's work. By the time he has passed his hospital apprenticeship, he is nigh unto 30 years of age and inclined to offer hostages to fortune by assuming the responsibilities of matrimony. The enthusiasm of youth has, to a large extent, gone. Ten years before he stood at the foot of the hill eager for the journey, but the ascent has been long and rough, and now he is a bit weary. His most receptive, acquisitive and impressionable years have passed. In an age where so much is sacrificed to speed, it is not unreasonable to ask if the result has been worth the effort, or if at least some easier, more satisfactory route might lead young men and women earlier to become worthy to serve the suffering.

On this continent, 13,000 applied last year to study medicine. Only 6,000 were accepted. This was carried out by careful selection; in a few of the very best schools, the result was satisfying. The majority, at all events, had a university training in arts, with special study in the sciences.

As a matter of fact, however, in many of our universities the early years of training in arts and sciences are not as far reaching and are less thorough than the final years in the public schools of Europe and Britain.

Unfortunately, much of the present teaching at the university belongs more properly to the secondary schools. A student should arrive at a university more mature, capable, to some extent at least, of selecting his own education as a result of a good preliminary training. After such preliminaries, he would enter the medical school as to a graduate institution, and with all the self reliance and confidence necessary for self education. This, however, happens only to the few—such, for example, as are worthy of membership in this society.

It is true, we accept our students on a basis of credits and credentials—we all do that—and, where possible, the student is interviewed personally. Mistakes are not easily avoided, for sometimes the situations are difficult—sometimes even humorous.

In declining to accept one candidate, whose application was crude, illiterate and ill spelled—obviously the product of a backward boy—I ventured to state that, judging from his application, his preliminary education was scarcely adequate. He indignantly challenged the objection on the grounds that he could produce a recommendation from the professor of English in his own university—which he did. With experiences such as this, there is little doubt that the need exists for an intellectual stock taking. Apparently on this continent, both in Canada and in the United States, all men are considered equal; there is not the same appreciation, perhaps, as in Europe of differences in mental discipline, in character and in intellectual ambition. In the English and in the German schools they do it somewhat differently—perhaps, too, somewhat better. After an excellent school training, with its unparalleled mental discipline, in which atmosphere counts for so much and intellectual ambition is fostered, a lad may matriculate either to the university or to the study of medicine. In the latter case, one year of special training suffices. No college years are demanded, but merely the qualifying examination. Granted the all important, good elementary education which he usually has in the gymnasium, the lycée or the public school, he enters on his medical career with the enthusiasm of youth, and after five or six years of study may attain his goal at the age of 25. By that time he is qualified to practice, and the examining boards see to it that he is not a menace to the public. The man, however, who aspires to distinction need not stop there. He goes on to higher degrees, qualifying himself for proficiency in one or other of the branches of his choice. Each one of these flights is barred by a rigorous examination, and qualification is no easy matter. This procedure he may begin earlier as a student of the biologic sciences through honors courses in the faculty of arts leading to a bachelor of science degree.

Here they all enter by the same general portal, guarded by the ogres of physics, chemistry and biology—unattractive so often in their presentation, unnecessarily dull, because devoid of any indication of their importance to subsequent work or the future medical career—so far removed, too, in years from the clinical work as to be, for the most part, forgotten by that time and hence not much more than a penalty and an ordeal. Whether or not the chemistry is that of commerce, the physics that of engineering, the biology inapplicable to medical problems, makes little difference. The main purpose seems to be that the student shall have credits for being exposed to two or three years of college instruction—not necessarily education, but often a type of advanced school teaching expressed in hours. It is doubtful whether the years spent in this way are really to the profit of the future student of medicine. If, however, he has been so fortunate as to pass the selection board, he is admitted to the medical school, entertaining the hope that now he will make human contacts, which will enable him to learn how to be worthy to practice his profession. Here, again, over a long period he is introduced to minute dissections, to kymographs and spectroscopes, test tubes and frogs, which are to provide the essentials of fundamental knowledge. Unless, however, these subjects are made not only instructive as pure sciences but equally applicable to his future work, the interest will flag and his long course of laboratory instruction will dull his sense of the human element in practice.

Courses in the biologic sciences are provided not for the accumulation of facts alone, in many of which he will not and cannot take an interest, but they are further intended to stimulate his powers of observation and right thinking. It does not always follow, however, that hours spent in a laboratory are synonymous with scientific thinking. For the better students this purpose is achieved, but for the man of average caliber—unless the instruction is of a very high order and the teacher of exceptional ability—the results are doubtful. To this the clinicians testify amply in later years.

It really would seem, for example, that in physiology twenty practical demonstrations out of a total of sixty on the neuromuscular system of the frog are of educational value only to the few, and certainly not of great practical value to the majority in later years. It goes without saying that the laboratories are essential, both for teaching and for diagnosis; but if these courses are too lengthy, not applicable and occupy most of the period of two years in this form of instruction, without any human contacts being made to explain their relation, the outlook of the student in his future procedure is somewhat perverted. The evil follows him in his clinical years, for, as he will soon learn when coming to the bedside, the application of laboratory investigations to the art of diagnosis has brought into existence a number of observers whose work is conducted away from the patient. True, their valuable help often enlarges the study, and so the art of medicine becomes more exact and confident. But, to the student, the results of these isolated observations are often so clean cut as to seem final, and, unless combined with a consideration of the whole clinical picture, the impression given to the student is a false one.

A better order of things will surely come to pass when the laboratory expert is not ordered about by the clinician from the distance but will be invited to frequent the wards, going with the clinician to the bedside in daily consultation when the need arises. There is much that each can learn from the other. Whether in chemistry or bacteriology, radiology or clinical medicine, mistakes would be less frequent, and the student and the patient would benefit equally.

Rather than divert his clinical investigation from the bedside, the student should be taught, first and foremost, to use his own plain senses, his eyes and ears and hands, which he always has with him. When, too, as a senior student, he observes, as he surely will, the hospital physician in his daily rounds, allowing his syndicate of laboratory workers, who never see the patient, to determine the final decision of a diagnosis and even to dictate the treatment, it is surely time that we reviewed the situation in the clinical field.

The evil is not wholly with our faculties but in the generally accepted system. The early preparation for medical study and the professional education leading to practice have eluded our control. More and more special and technical knowledge is demanded, and the burden is each year increased.

Each faculty member deplores the crowding of the curriculum, but, while abusing his colleague's policy, makes no reduction in his own. Curious, is it not, that no place now exists on our faculties for those who, like Sir James Mackenzie, have enjoyed the advantages of a large general practice and who therefore, from direct and personal contacts and experience, would best guide the destinies of the future practitioner of medicine.

Your National Board of Medical Examiners has recently stressed the need of more practical experience in the student's training, claiming that, prior to the inclusion of a hospital year in the curriculum the medical education had been far from complete. Such an arrangement suggests putting a patch over a nasty rent, and is, educationally, but a half measure of emergency.

The patient, as Dr. Hawthorne says, should ever remain the central feature of the problem — not the technician, not the laboratory attendants, not some unknown official. The personal responsibility must rest with the doctor, who should have learned not so much the technic of the laboratory investigations as its significance.

RESEARCH AND PRACTICE

For the young physician in practice, laboratory research can be undertaken with credit only by the very few already well versed in method. Like Portia's suitor, the practitioner must choose between the caskets and hazard all; it is rarely that one can serve two masters at the same time and do one's duty to both faithfully and well.

With the doctor, as with the fireman, when we want him, we want him badly. It is not enough to be told that he is in his experimental laboratory or at the golf club.

This is no new story, this discussion as to the respective importance of the art and science of medicine, this assumed domination of the laboratory over the clinical field. You may read John Brown's charming essay on the subject written in 1866 and readily imagine yourself reading the minutes of a faculty meeting in 1933. He emphasizes the primary necessity of attending to medicine as an art of healing not less than as a science of disease. We want more of the first than of the second, he says, for our age is becoming every day more purely scientific and is occupied far more with arranging subjects and giving names than with understanding and managing human beings. What fitted Harvey for his great achievement unfitted him for such excellence in practice as Sydenham attained. As his friend Aubrey said of him, "Though all his profession would allow that he was an excellent anatomist, I have never heard of any one who admired his therapeutic way."

Compare the fervor of the Sydenhams with the hard, cool, nonchalant style of many of our modern men of science, each of whom is so intent on his own little pebble, so self involved, and so self sufficient that his eyes and ears are alike shut to the splendors and the shadows. "A man wrapped up in himself makes a very small package," says Ed Wynn. There is, of course, always a temptation to push the contrast too far, for in reality the two run into each other. Art is often the strong, blind man on whose shoulders the lame and seeing man is crossing the river—it is one thing to discover and another to apply.

I recall with interest an invitation from our hospital, extended many years ago to the late George Ross, to assist us in a diagnostic dilemma concerning a patient over whom there was much controversy. It was an unusual skin lesion, an eruption, which left some uncertainty as to the presence of variola or some other infectious malady. Dr. Ross came and heard the history read. He asked for a second reading of the history, while he listened with his usual care. Walking briskly into the ward and to the bedside of the patient, he threw back the clothes, looked at the skin for a few brief moments and asked the patient one question only: "Have you ever suffered from nasal discharge?" On receiving an affirmative answer, Dr. Ross turned to the resident, saying, in his usual staccato fashion, "Glanders; good morning." On being challenged that he doubtless had seen many such cases and that the diagnosis must be an easy matter from his wide experiences abroad, he replied, "Ten years ago I saw my first case of glanders in Vienna; this is my second. Good day."

The instinct of observation was one of Dr. Ross's distinguishing characteristics. His motto then, as in the case of most clinicians of his period, was expressed in the terms *Ars medica tota in observationibus.*

The edifice of medicine rests entirely on facts; and the truth or the facts can only come from careful and complete observation, which surely is concerned, first and foremost, with the patient rather than the test tube. One of the outstanding defects in our system of clinical training has been a progressively diminishing observation of the patient himself, on the part both of our teachers and their staffs. By force of this example, the patient has become largely material for laboratory investigations, the human contact being submerged in the effort to establish the facts of the laboratory. The result of this new mode when carried to excess is that we tend to dissociate the personal relation of the pupil and teacher—so much so that clinical bedside instruction has become the Cinderella of the course. Surely more careful observation at the bedside, and the proper sifting of evidence by selection of essential facts, is equally a scientific method. Outpatient departments and the wards are the best clinical laboratories for the future practitioner, and the careful, patient investigation of every detail in the history of the symptoms and the signs is a hallmark of accuracy and a policy of wisdom. This, too, should give him a philosophical, as well as a scientific, approach.

This technic, which is as old as time and was the method of Hippocrates, Galen, Sydenham and Sir James Mackenzie, combines all the virtue of observation with the advantages of research. The great clinicians of every era have carried on their work through just such patient, thoughtful observations. Mead's careful study of the problem of contagion, as observed at the bedside, was followed by successful ventilation of ships in travel. Pringle's researches on gaol fever and on the housing of soldiers were clinical observations, rapidly followed by a great reduction in mortality. Captain Cook's successful journey of three years around the world in all climates and under many unfavorable conditions, with only one death among the 118 soldiers, was the result of clinical advice along similar lines. It was Fothergill's observations on resuscitation that enabled the Humane Society to organize its important work in England. The very recent and epoch-making work of James Mackenzie on the pulse and heart, carried on chiefly among private patients in an absorbing practice, is familiar to all. As a result of his clinical investigations, many popular misconceptions as to the seriousness of cardiac signs and symptoms were corrected, and heart disease lost much of its terror, both for the profession and for the public.

Surely the field of clinical investigation at the bedside has not yet been exhausted. It is only within a few decades that one of America's greatest physicians recorded the finding of a perforated appendix with a general peritonitis, but its significance was not recognized at the time. It required further observations and a collation of the facts by Fitz to determine a relationship that now is so very obvious to all. Had Anson, in his voyages, but made more careful clinical observation on the existence of scurvy among his men, it would have enabled him to effect an early cure. It was merely not observed at the time that the well fed officers were free from the disease, while only the sailors, whose diet was inadequate, suffered. In the same way, curiously enough, the incidence of scurvy in Shackleton's expedition, despite more modern knowledge, was merely the result of neglect of attention to these well established clinical facts.

To the influence of Professor Louis of France, America owes much of its distinction in clinical medicine. He it was who inaugurated the numerical method, a system of clinical observations carried on over a series of cases sufficiently large to permit of conclusions being formed. After a period of four years' practice in Odessa, during which the mortality in children from diphtheria created in him a profound impression, he relinquished private work to pursue his studies. Seven years of patient observation convinced him of the value of facts collected at the bedside and led to his distinction as a Parisian teacher, to whom pupils from America flocked and from whom they came back to spread the influence of his doctrines. Such a man was the elder Janeway; so, too, were Billings and Senn, both natives of Wisconsin, and a host of others in America, who, though they shared in the advances of experimental research, never lost sight of the need for careful observations at the bedside. Byron Bramwell's observation clinics in his outpatient department in Edinburgh were a Mecca for graduates the world over, while Sir Charles Bell in surgery attained in a similar way a reputation so great as to warrant his selection as the central figure of Conan Doyle's masterpiece. Voltaire's appreciation of these faculties was well described in the familiar story of Zadig and the lost dog. The power of making good observations, a retentive memory, a fixed attention, and the habit of generalization were characteristics of all their clinical researches. These, the most important qualities of the physician, can be acquired or strengthened only by early, intensive and patient study. I merely stress the defect in clinical teaching which takes the student away from the patient.

In contrast to the clinical observations I would cite the competitive effort to place every medical school in the first rank, as a result of which expensive laboratories have sprung up, and with them a demand for research irrespective of quantity or quality of personnel, or the value of the thing "researched." Volume on volume of transactions are published yearly and bear ample evidence of the mediocrity of work which justifies the expenditure of neither the time nor the money. Is it any wonder that the cost of medical education is so high, and that, with the increasing cost of medical education, the expense of medical care takes a corresponding rise?

GRADUATE FACULTIES

A similar criticism in education in general has been with some justice launched at the crowding of our graduate schools with aspirants for higher degrees. Quantity, rather than quality, seems to be a matter of pride in some of our graduate faculties; one need but compare the number of students with the paucity of the staff to realize the impotence of such a scheme as a basis of education. Graduate study has become a system, and the acquisition of knowledge for its own sake has been superseded to a very large extent by mass effort, just as the horse has been superseded by the automobile in our desire for speed.

In the course of conversation with the leaders of a large pulp and paper industry, it was suggested that our university should offer special training to qualify men for the paper industry, more particularly on its chemical side, to which the president of the corporation

replied, "If you can send us men with a good fundamental education and a wide knowledge of chemistry in general, it will be an easy matter for us to train them in the more special technical lines of this industry." In other words, they ask that we supply the properly trained men, with a wide and deep general knowledge of their subject, who can undertake any job at the word "Go," not because of their knowledge in a limited field, but rather because their broad education has given them self reliance, judgment and experience.

Every engineer will tell you that it is the knowledge of fundamental mathematics that determines the difference in quality of one engineer from another, the good one from the bad. This indeed strikes at the root of the matter. In the race for higher degrees, they have become, as it were, a kind of union label, a badge of the gadgeteer. So insistent has been the demand on the part of school boards and certain commercial houses for doctors of philosophy that our graduate school has been crowded with men, who, despite a lacking in fundamentals, have been permitted to engage in one restricted investigation, the carrying out of which is often synonymous with the attainment of the coveted honor. The thing has become a racket. The same holds true in all lines of study, most of all, perhaps, in pedagogy. In one university, for example, there are fifty different courses on physical education; in another, fifty on administration, including janitors. In another there are thirty-six on elementary education. But the racket will run its course. The ability to teach others is something much more human and exalted than this, but until some better means can be obtained to produce good teachers and give them recognition and scope and status, I see no salvation. As it exists today, it is largely a feudalism of administrative barons and teacher serfs.

Examine, if you will, the curriculums of most of our universities, and you will find not only so many subjects in the curriculum but in each such a variety of courses that obviously the time is insufficient for the acquisition of the subject matter to be taught. Courses are characterized by their specialism, not by their fundamental and general education. No, the machine age has not yet reached its maximum. We are slaves to the system—the course system and the "credits" system. What we need, however, is more of the fundamental, broad education, that we may build on a satisfactory foundation whatever specialized and graduate study we may venture later to undertake.

Despite the apparent tone of pessimism throughout these remarks, may I confess, in conclusion, not only to a great appreciation of all that has been and is being done in medicine on this continent but also to an unswerving optimism for the future. This country cannot but progress. Evils we foresee often do not come to pass. Nothing is so good or so bad as we expect. As Sir Andrew Macphail so aptly says, "A pine tree does not grow up to the skies, nor a man's whiskers to the ground."

Some of the greatest clinicians in the world were born and trained on our own soil. American discovery has played a significant part in medical science. European students are sent here annually in large numbers to learn of our methods and of our experience. In elementary and fundamental education, however, we need to understand more clearly our aims and objectives in the training of medical undergraduates. We seem to have fallen between two stools. The subject matter and arrangement of our curriculums suggests that either our ambitions in pure science are too exalted or our efforts to make general practitioners are inadequate. After all, with the splendid achievements of modern medicine and the advantages that are being offered in the cure of disease, there never was a more opportune time for good, honest, well trained, general practitioners. It is what the world most needs here and now.

Samuel Harvey tells us that 80 per cent of all maladies that human flesh is heir to can be satisfactorily cared for by the well trained general practitioner, and without the aid of specialists.

A pity, is it not, that the public has never been sufficiently enlightened on the value of a well trained family physician, and how much better served people would be were they to leave it to him to say when and where advice of this special kind should be sought. The cost of medical care would be less, the results would be more satisfactory, and there would be less occasion to solicit the aid of the irregular practitioners of the various cults. We cannot, however, find fault with the public if it chooses to buy its thimbles at a jeweler's rather than get an equally satisfactory article cheaper elsewhere.

The cure for our ills in medical education goes back, in reality, to the secondary schools. If we are to improve our system of undergraduate teaching in arts or in medicine, we must take the long distance view of our needs and our defects. It is futile to tinker with the engine room when the ship is headed toward the rocks. By that time the matter belongs to the navigator. If, on the other hand, we are sufficiently far away from land, the policy of reconstructing the engine room becomes desirable.

And so, applying this metaphor of Professor Clarke's to our secondary schools, something might be done to obviate the terrible waste, the dry rot of the unused faculties of childhood. While I would insist on a sound elementary education for every child, more discrimination should be exercised in the admission to more advanced studies of so many children who are unfitted for an extension of knowledge. Our universities are already loaded down with the burden of instructing boys and girls, many of whom would be much better occupied in other spheres of work.

We shall look forward to the time when our schools may offer a still better mental discipline and a still better environment to prepare the young people for their future career.

Most important is it to elevate the status of the school teacher to employ such only as have background, refinement, and so broad a general education in every sense of the word that the profession of a school teacher may be thereby more and more respected and appreciated. To impart the essentials of an accumulated store of existing knowledge is no easy task and should be entrusted only to those who are worthy of the responsibility. Only, perhaps, when the emoluments of the teacher render that profession more inviting is there any hope.

In some of our older countries the stipend of a well prepared teacher is an index of the respect and appreciation of the functions of the teacher in the school. The salary, for example, of a headmaster, say in an English school, would make the president of many a large business corporation here envious. Until such time arrives, too, at which the schools accept greater

responsibility for a still more advanced education and relieve the universities of much elementary training, we shall not have completed our task. Under existing conditions, universities are compelled to follow, not to lead, the schools on the questions of curriculum. Ninety-five per cent of the universities on this continent accept responsibilities for teaching subjects which properly belong to the secondary schools, and much of this instruction is given, as it were, by subcutaneous injection, not as a matter of real education.

The title too of university professor has ever been one of respect and dignity in the past; it should be more difficult to attain than is the case at present. Universities and medical schools are conspicuously overstaffed at the top with so large a professional personnel that the title has lost not only a great deal of its distinction but likewise its importance and its power, its respect and its dignity. Columbia University has 178 professors in its medical school. The University of Göttingen is content with 32, and the University of Breslau with 59. I would submit that fewer clinical professors in all our medical schools would be an advantage; that each should attain his rank not alone because of any special knowledge or scientific achievement but rather because of a wide, general education and experience, in which the gifts to inspire and impart are paramount qualities. The tenure of office should be given a temporary trial before permanence is granted.

The process of making a practitioner of medicine needs still more revision if its main objects are to be achieved. The teaching of a medical student is a serious obligation, and the better it is done, the greater is the respect for and influence of the teacher. With an improvement in our attitude toward education in general, our medical schools would naturally attract and select a far better educated type of student for the pure sciences, and a more self reliant, dependable general practitioner. Our faculties could then adopt a much more flexible curriculum, permitting an unembarrassed choice in medical education, which does not of necessity follow the methods as prescribed in our secondary schools.

Our courses for the general practitioner might reasonably be curtailed, while, at the same time, every facility might be given, as at present in the British system, for advancement in the fundamental sciences and the specialties.

To the senior teacher should be allotted, most of all, the elementary medical education of the future practitioner. He alone should preside over the teaching in the outpatient department, where the student will meet more commonly than elsewhere the conditions to be encountered in his later practice. Most of all should they appreciate the difference between the essentials and the nonessentials, and the prime importance of careful observation of the patient himself. Faculties would then gradually realize that there are two types of undergraduates to be educated in our medical schools—the one for sound, scientific practice of medicine, and the somewhat different type of pure scientist and specialist. Each is of capital importance, but, in the latter case, a more elaborate training is required for the special field. With all the study devoted in recent years to medical education, we can surely hope that in the near future the making of a practitioner will be less involved and complicated and that America will still more successfully compete with older countries in the training of its youth.

DOES OUR DIETARY REQUIRE VITAMIN A SUPPLEMENT?

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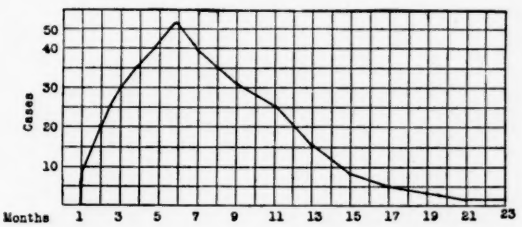
In spite of great and rapid advances in knowledge concerning the rôle of the vitamins, there is a striking difference of opinion as to the requirement of these essential factors. Some believe that, under normal conditions, the peoples of the United States and those living in countries similarly situated economically need not be concerned as to the fulfilment of their vitamin requirements. Others are of quite the contrary opinion. This divergence has centered mainly on vitamin A, variously termed the fat-soluble, growth or anti-infective vitamin. Although the necessity of including this vitamin in the dietary of both animals and man is universally conceded, especially for the young, there is nonagreement as to whether the bodily needs are being adequately met and, accordingly, whether there is danger of a deficiency of vitamin A leading to latent forms of nutritional disturbances.

For several years we have been actively interested in this problem. In the first place, it is one which must



Age incidence of xerophthalmia (Bloch).

necessarily concern those in charge of child-caring institutions, for, although the incidence of diarrheal disorders or "summer complaint" has, during the past decennium, signally fallen in institutions harboring infants, respiratory infections, in other words, "winter complaint," with its attendant high mortality, have continued to thwart all efforts. Furthermore, this problem is essentially pediatric, in that the greatest susceptibility to vitamin A deficiency occurs during early childhood. Indeed, if one glances at the curve of incidence of xerophthalmia, representing the classic cases of Bloch of Copenhagen, one sees that the fastigium is reached at 6 months of age, as shown in the accompanying chart. Infancy, therefore, must be regarded as best suited for a study of the clinical manifestations of vitamin A deficiency, especially in its incomplete and subtle forms.

Some years ago, it will be remembered, ultraviolet radiation was widely acclaimed as a valuable protective agent against respiratory infections. However, a thorough clinical test in our institution failed to demonstrate that this therapeutic agent is of decided benefit in this respect. The morbidity and mortality of respiratory diseases proceeded apparently uninfluenced by systematic irradiation with the mercury vapor lamp throughout one winter and with the carbon arc lamp during the succeeding winter. Disappointed in this effort, three years ago we turned to vitamin A as a

From the Home for Hebrew Infants.

preventive against infections, more particularly those involving the respiratory tract. It should be mentioned, however, that our previous experience did not seem to warrant the labeling of this nutritional factor as "the anti-infective vitamin." Only the year before, in a study carried out to ascertain whether mild rickets, the common type of this disorder, induced susceptibility to respiratory infections, we found that such was not the case but that infections of this kind, mild as well as severe, developed quite as often among the 100 infants who had been protected by means of standard doses of cod liver oil as among those who had not received this medication, which is rich in both fat-soluble vitamins A and D.

During the past three years we have attacked this problem more and more systematically, hoping to be able to reduce the great number of infections of the respiratory tract or at least to mitigate their severity and decrease the occurrence of pneumonia. In the winter of 1930-1931, a painstaking investigation of this problem led to failure.[1] Without reciting the details of this study, which are to be found in the original report, it may be stated that large series of infants were given a diet especially rich in vitamin A—including not only milk but butter as well as vegetables—and that, in the course of an observation period varying from four months to a year, all these infants developed one or more infections. Furthermore, it proved to be immaterial, from the point of view of susceptibility, whether the infants received amounts of vitamin which were far above the established dosage. Our efforts during the succeeding winter met with no better result. Respiratory infections occurred apparently to an unabated degree among a group of infants that were given the benefit of a large addition of vitamin A in the form of a supplement of cod liver oil. Moreover, not only were the infections increased from a relative point of view but the absolute number of infections in the institution was unusually high.

This past winter we have again carried out a clinical investigation of the protective potency of vitamin A, the main difference in procedure being that higher dosages were used, that carotene was given to one of the groups of children and that a large control group was placed under observation under what must be regarded as almost identical hygienic and nutritional conditions. It seems hardly necessary to enter into a detailed description of the nature of the institution, of its facilities or of the type of children which it harbors. These important factors have been described repeatedly in numerous papers emanating from our institution. Suffice it to say that it is a model child-caring home, favored by an exceptionally low mortality; that it cares for children under the age of 3 years, and, more particularly, that the dietary, the supply of fresh air, the quarantine system and the nursing are subject to such regulation as to make living conditions exceptionally uniform. At the end of November, forty children were given a daily supplement of haliver oil and viosterol; forty others of about the same ages, a supplement of carotene in oil and viosterol, and eighty, viosterol with no additional vitamin A. The dosage of haliver oil was 0.5 cc., or 20 drops a day, which contained about 20,000 A units; the daily dose of carotene was one teaspoonful, which likewise represented about 20,000 units; the eighty infants comprising the control group did not receive a supplement of vitamin A but, as stated, were given viosterol in order that their antirachitic needs might be adequately covered. All three groups received 20 drops daily of viosterol 250 D. The period of study covered a span of five months, ending about the first of May. It comprised, therefore, the season of highest incidence of respiratory disorders. Careful notation, for which we are indebted to Dr. Morris Krosnick, was made in regard to the occurrence not only of pneumonia, bronchitis and pharyngitis but also of otitis media, conjunctivitis and skin infections; temperature readings were taken three times a day, and weighings once, twice or three times a week, according to the age of the child.

In addition to this study, an investigation was carried out last summer to ascertain the relative incidence of "colds" or summer respiratory infections within the institution. The idea underlying this part of the study was that supplements of vitamin A might be able to prevent the mildest type of respiratory disorder and that such a group might give a definite indication of protective action from cod liver oil. A third part of the investigation was a test to ascertain whether vitamin A exercised any influence in regard to skin infections. It was thought worth while to institute a study of this kind, as some observers had reported that impetigo and boils occurred less frequently when cod liver oil was given. Fourthly, inquiry was made in regard to the occurrence of night blindness throughout the United States. This method of approach seemed promising in view of the fact that night blindness is the most delicate indicator of a lack of vitamin A in the dietary; it is, in fact, the most delicate indicator known in relation to any of the vitamins, for it gives evidence of a deficiency by a symptom that is purely subjective, occurring before the least pathologic change can be detected, indeed before any abnormal changes are discernible by means of the ophthalmoscope.

TABLE 1.—*Comparative Incidence of Infections Among Groups of Children Receiving and Not Receiving Vitamin A Supplement*

Group	No. of Children	Infections				Infections per Infant (5 Mos.)	Pneumonia	Otitis Media	Deaths
		Total	Mild	Moderate	Severe				
Vitamin A*	77	245	125	60	60	3.5	8	31	2
Control....	75	241	143	52	46	3.3	4	28	0

* Includes infants given haliver oil or carotene.

The results of the tests with haliver oil and with carotene are summarized in table 1. Since approximately the same number of units were given daily in the form of the provitamin and of the vitamin, and since the outcome proved to be the same under either form of medication, the data have been combined to render the survey clearer and broader. A glance at table 1 shows that, as was to be expected, the eighty cases on vitamin A supplement as well as the eighty controls became slightly reduced in number during the course of the winter, so that by April only seventy-seven and seventy-five infants, respectively, remained in the two groups. A review of the figures indicates that mild infections were somewhat more frequent among the control group and severer infections were higher among the vitamin A group. The number of infections per infant during the five months observation period was about the same; each suffered from a respiratory infection about 3.5 times in the course of

1. Barenberg, L. H., and Lewis, J. M.: Relationship of Vitamin A to Respiratory Infection in Infants, J. A. M. A. **98**: 199 (Jan. 16) 1932.

the winter. Turning to the record of complications, one will note that eight children developed pneumonia among the vitamin group whereas only four developed this disease among those who were not receiving additional vitamin. If the case is added of an infant who developed pneumonia while receiving cod liver oil and who did not strictly belong in the study, the vitamin cases are increased to nine, and if, in a similar manner, one adds a patient who may well be considered a control although he did not receive viosterol and two others who may likewise be regarded as controls and were getting irradiated milk, the cases of pneumonia in the control group are raised to seven. From whatever point of view the outcome is regarded, it is clear that the incidence of pneumonia was even higher in the group which received vitamin A supplement than among those which received no such supplement. It will be noted that no distinction could be drawn between the occurrence of otitis media among those receiving and those not receiving additional vitamin A. This result bears out the recent experience of Sutliff, Place and Segool,[2] who found that large doses of cod liver oil did not serve to prevent this complication following scarlet fever.

Table 2 is appended in order to emphasize the importance of the factor of age in studies relating to the incidence and severity of infections in infants. By a division of the clinical material into five groups, it likewise shows that there is a consistency in the data and that a consideration of every one of the five age groups leads to the same conclusions; namely, that the infants who received vitamin A preparations manifested no advantage in regard to resistance to infection as compared to those of similar age who were getting merely the standard diet. Age is of such peculiar importance in interpreting a study of this kind among infants that we have reproduced the age distribution of children in our institution for a ten-year period in

TABLE 2.—*Age of Infants in Relation to Incidence and Severity of Infections*

Group	Ages, Years*	Infections				Infections per Infant (5 Mos.)
		Total	Mild	Moderate	Severe	
Vitamin A.....	0–½	4	2	2	0	**0.8**
Control.....	....	5	3	2	0	**0.85**
Vitamin A.....	½–1	88	31	28	29	4.1
Control.....	....	71	36	14	21	3.3
Vitamin A.....	1–1½	55	26	11	18	3.8
Control.....	....	73	45	17	11	4.1
Vitamin A.....	1½–2	27	16	3	8	3.0
Control.....	....	21	13	2	6	3.3
Vitamin A.....	2–3	71	51	14	6	3.3
Control.....	....	71	46	17	8	3.4

* Infants falling within two age groups have been included twice. Some infants were in an age group only two or three months.

relation to the occurrence of pneumonia (table 3). The outstanding figures in this tabulation will be found in the last column, which shows that among 6,894 children under the age of 5 years, somewhat over 4 per cent developed pneumonia during the first six months of life, 13 per cent during the second six months, 15 per cent between the first and second year, and that thereafter the percentage of incidence rapidly and regularly fell. It may be added that data compiled subsequently have served to bear out the relative immunity of infants to respiratory infections during the first half year of their lives. Furthermore, in an examination of data covering a subsequent three-year period, it was found that infants between birth and 3 months of age are even less susceptible than during the period of from 3 to 6 months.[3] These figures have a particular application to our problem. It is evident that the age distribution of xerophthalmia, as shown in the accompanying chart, bears a reverse rather than a direct relationship to the age distribution of respiratory infections in infants. The first six months of life, the time of relative nonsusceptibility of infants to infections, is the very period of high incidence of xeroph-

TABLE 3.—*Age Distribution in Relation to Pneumonia for a Ten-Year Period*

Age	Population, 1916-1927	Per Cent of Total	Cases of Pneumonia, 1916-1927	Case Rate per Age Group, per Cent
0 to 6 months.....	505	7.3	22	**4.3**
6 months to 1 year.....	739	10.7	106	13.0
1 year to 2 years.....	1,392	20.2	214	15.4
2 to 3 years.....	1,318	19.1	105	8.0
3 to 4 years.....	1,317	19.1	41	3.1
4 to 5 years.....	1,623	23.6	17	1.0
Totals.....	6,894	100.0	505	7.3

thalmia — the prototype of vitamin A deficiency. Considering this phenomenon of age susceptibility from the standpoint of the store of vitamin A which has been found in the body, there is general agreement that the new-born infant is distinguished by an exceptionally low fund of this vitamin at the time of birth. Indeed, Wolff [4] found that the livers of 60 per cent of newborn infants contained none of this vitamin whatever and that those having a store at birth contained this factor in but small amount. The same deficiency at birth has been found by Dann [5] to hold true for rats and by Busson and Simonnet [6] for the livers of puppies. Evidently the outstanding resistance of the very young infant to respiratory infections, in comparison to the older infant, cannot, whatever its nature, be ascribed to an exceptional supply of vitamin A. It should be added that, from the point of view of the postnatal supply of vitamin A, conditions in our institution favor the infant from 6 to 18 months of age, as it is during this period that vegetables, eggs and butter are regularly added to the dietary.

The study of the groups was approached from another angle. Ten among the total 160 infants were picked out for having developed the greatest number of respiratory infections during the five months experimental period. Likewise, ten infants were garnered as distinguished for having shown the least number of infections during the same period. A comparison of these extreme groups should give information as to whether nonsusceptibility could be related to giving vitamin A and high susceptibility to a lack of administration. On consulting the records it was found that five of each group, of the susceptible as well as the nonsusceptible, had been receiving a supplement of vitamin A and that five had not received the supple-

2. Sutliff, W. D.; Place, E. H., and Segool, S. H.: Cod Liver Oil Concentrate (Concentrated Vitamins A and D): Ineffectiveness of Large Doses in the Prophylaxis of Otitis Media Complicating Scarlet Fever, J. A. M. A. **100:** 725 (March 11) 1933.

3. Were it not for this marked nonsusceptibility of the new-born to respiratory infections, the infant mortality in lying-in institutions would be far higher. When one considers the close quarters in which they are frequently kept, the scant allowance of cubic air space which is provided and the numerous adults with whom they are in contact, it is most fortunate that the new-born infant brings with it into the world a heightened degree of nonsusceptibility to infection.

4. Wolff, L. K.: Vitamin A in Population of Amsterdam, Arch. néderl. de physiol. **14:** 282, 1929.

5. Dann, W. J.: The Transmission of Vitamin A from Parents to Young in Mammals, Biochem. J. **26:** 1072, 1932.

6. Busson, A., and Simonnet, H.: Variation in the Content of Vitamin A in the Liver of Dogs According to Age, Compt. rend. Soc. de biol. **109:** 1253 (April 29) 1932.

ment. No distinction was noted, in regard to protective action, between the haliver oil and the carotene.

As stated, a test was carried out to ascertain whether the addition of cod liver oil to the diet would prevent what may be termed "summer respiratory infections." By this is meant "colds" which occurred during the summer and were accompanied by a rise of temperature to 100 F. or over. These infections are very mild and rarely associated with complications, so that it was thought that this clinical material would be most favorable for a demonstration of the anti-infective value of vitamin A. As may be noted in table 4, seventeen infants received cod liver oil and thirty-nine received merely the ordinary diet. The age of the two groups was similar, an average of about 5 months. The period of observation was July, August and part of September. The result of the study may be summarized by the statement that the advantage, from the standpoint of mild infections, was rather with the "nonsupplemented group," which had an average of 0.6 infections in the course of the two months period, whereas the "cod liver oil group" developed approximately 1.3. A somewhat similar study, carried out during the preceding winter, in which the infants were somewhat over 7 months of age and in which one group was given cod liver oil and the other viosterol, showed no advantage in favor of vitamin A; on an average, the infants

TABLE 4.—*Comparative Incidence of Mild Infections, During the Summer, Among Groups of Infants Receiving and Not Receiving Cod Liver Oil*

Group	No. of Infants	Age, Months	Average Period Observed, Months	Infections	
				Total	Per Infant (per 2 Mos.)
Cod liver oil.....	17	5.7	2.0	27	1.3
Control.....	39	5.1	2.7	32	0.6

developed an infection every month. As a deficiency of vitamin A is known to be associated with characteristic lesions of the skin and epithelial tract, as has been conclusively shown by the investigation of Wolbach and Howe,[7] attention was directed throughout the winter to local disturbances of ectodermic tissues. Microscopic examination of the urine and of the vaginal secretion failed to show an excess of epithelial cells among the control cases as compared to the infants that received the vitamin A supplement. This likewise held true for the larger groups that were under observation during the past winter.

The number of cases of impetigo was approximately the same in the two groups. There were fifteen instances occurring in fourteen children; seven were receiving vitamin A supplement and seven were not. The instance of twofold infection involved an infant who was given carotene and who developed the skin infection in December and again in January. This aspect of the study was subjected to a clinical experiment by carrying out a series of smallpox vaccinations among infants representing the two groups. Eighteen of the children had received three teaspoonfuls daily of cod liver oil for at least one month, and nine had not been given any vitamin A preparation. Among the former group, the mild local reactions numbered thirteen and the severe five, whereas among the latter the mild reactions numbered seventeen and the severe two; one of the severe reactions occurred in an infant who had been getting cod liver oil for over a year. It seems hardly necessary to give in detail the data regarding the systemic reactions. Suffice it to state that, in general, they favored neither group; of the four patients who reacted with high fever, three were receiving cod liver oil.[8]

A word should be added in regard to the occurrence of conjunctivitis during the five months period, as this tissue seems to be highly sensitive to a deficiency of vitamin A. Our clinical evidence in this regard may be dismissed with the statements that of the fourteen children developing conjunctivitis, seven belonged to the control group and seven to the vitamin group.

As is well known, one of the earliest evidences of a deficiency of vitamin A in later childhood and in adult life is the development of night blindness, a condition characterized by defective vision at night or when the light is dim. This accords with the observations that the retinas of various animals have been found to be especially rich in vitamin A. In 1931, Spence[9] of Newcastle reported cases of night blindness as well as nutritional xerophthalmia occurring sporadically in an urban industrial population unassociated, however, "with any unusual instance of general infections or lowered resistance." This report seemed worthy of attention and investigation in spite of the fact that Dr. Spence[10] has stated that he has seen no further cases of xerophthalmia "since the spring of 1931"; in other words, for a period of two years. In view of this experience, it seemed worth while to carry out a formal inquiry among the leading ophthalmologists throughout the United States to ascertain, in the first place, how often they encountered instances of night blindness and, secondly, whether this striking disorder had increased in frequency during the past year or two, owing to the stress of economic conditions. Accordingly, a questionnaire covering the subject from this point of view was sent out by Dr. Kirby and one of us (A. F. H.) to the various members of the American Ophthalmological Society. A detailed report of this investigation is being published elsewhere.[11] It may be summarized, however, by the statement that in all parts of the United States night blindness was reported to be of exceptional occurrence and xerophthalmia rare. Few of the specialists had encountered cases of this kind during the past few years. This experience is in accord with the scanty reports in the literature, as may be noted by consulting the volumes of the *Quarterly Cumulative Index Medicus;* the volume for the latter half of 1932 contains no reference whatever to night blindness. Furthermore, the consensus is that there is no indication that either of these diseases has increased in frequency during the economic depression. As both of these disorders of the eye result from a deficiency of vitamin A, the deduction would seem to be warranted that a lack of this vitamin is extremely uncommon among the child and adult population. Such a conclusion would seem to be all the more justified in view of the fact that night blindness is a very early symptom of vitamin A deficiency, occurring before any ophthalmologic evidence or microscopic lesion can be noted in the retina. Indeed, it is as yet the only characteristic subjective symptom known in connection with the symptomatology of the deficiency diseases.

7. Wolbach, S. H., and Howe, P. R.: Vitamin A Deficiency in the Guinea-Pig, Arch. Path. & Lab. Med. **5**: 239 (Feb.) 1928.

8. As a filtrable virus is supposed to be the etiologic agent of vaccinia as well as of the common cold, it seemed as if vaccinia might be especially suited to serve as the control disorder in a test of anti-infective potency.

9. Spence, J. C.: A Clinical Study of Nutritional Xerophthalmia and Night-Blindness, Arch. Dis. Child. **6**: 17 (Feb.) 1931.

10. Spence, J. C.: Personal communication to the authors.

11. Hess, A. F., and Kirby, D. B.: The Incidence of Night Blindness in the United States: A Gage of Vitamin A Deficiency, Am. J. Pub. Health, to be published.

In the rat, as soon as the store of vitamin A has been depleted, a cessation of growth comes about. In fact, this phenomenon is used as one of the standard criteria in assaying products for their content of this vitamin. In infants, under clinical conditions, the relationship between growth and the supply of vitamin A is by no means intimate, as was pointed out by Hess and Unger [12] in 1920 in connection with a study of some infants who had received a minimal quota of this vitamin for a period of many months. Were we to use growth as a criterion of adequacy, we should conclude that the infants in our institution who are on a diet consisting of diluted pasteurized milk and cereal are receiving sufficient of this vitamin, for we have rarely been able to bring about a gain in weight simply by the addition of cod liver oil. With this point in mind, we have compiled and charted the weights of the two groups of infants studied this winter (table 5). It is evident at a glance that no distinction in this respect can be drawn between the vitamin A and the control group. At every one of the five age periods approximately the same gain was made during the course of the winter.

Large amounts of an oily solution of carotene were given daily, a teaspoonful or the equivalent of about 20,000 rat units, which represents the extract of about 60 Gm. of dry carrots or 500 Gm. of the fresh vegetable. It was decided to give this high dosage for several reasons: In the first place, we wanted to eliminate any question as to whether an adequate amount had been given, an important consideration in regard to a therapeutic agent which has been in use for only a short while. Furthermore, there is little or no information regarding the conversion in man of carotene, the provitamin, into the active vitamin. In fact, Moore [13] has reported that in animals the conversion of the one into the other is by no means quantitative from the standpoint of efficiency. There is one phenomenon that is of interest and worthy of mention. Almost all the children developed, to a greater or less degree, the yellow discoloration of the skin for which, in 1919, Hess and Myers [14] coined the name carotinemia. This clinical development is striking and gains added significance in the present study, as it must be interpreted as denoting that the infants who received the carotene supplement were saturated with this substance and had an excess from which to elaborate vitamin A. The yellow color makes its appearance in definite locations, more particularly at the thenar eminences of the palms and on the soles of the feet, as well as along the alae nasi. There is some variability in localization and still more marked individuality in regard to the intensity of pigmentation. No child was absolutely spared throughout the five winter months. Five, however, may be considered as having developed very mild pigmentation, and five of the forty were designated as +++, indicating the severest grade of coloration. The blood of the patients was carefully examined, a detailed report of which will be presented elsewhere. It should be noted especially that the blood platelets, which some have considered a valuable indicator of a deficiency of vitamin A, were not increased in carotenemia. As was to be expected, the yellow discoloration of the skin paralleled, in a general way, the intensity of yellow color in the blood serum. Making use of a color standard composed of solutions of potassium bichromate of several intensities, as has been suggested by others, it was found that the carotene per hundred cubic centimeters of serum was about 0.975 and 0.760 mg. in the most marked cases, falling to less than 0.1 mg. in the mildest cases. Since xanthophyll and bile may be present in the serum, care must be taken that these pigments are not confused with carotene; a separation can readily be made by means of appropriate solvents. These figures for carotene in the blood refer, naturally, only to the patients who were receiving carotene; those who were receiving haliver oil had a very small amount of carotene in the blood. On the other hand, they were found to have about 2 or 3 blue units, representing vitamin A, per hundred cubic centimeters of serum. This small concentration accords well with the result of other investigators and shows how little vitamin A is to be found in the circulating blood. The carotene cases showed no "blue units" in the blood, as estimated by the Lovibond tintometer.[15]

As is well known, about four years ago Mellanby and Green [16] reported that, to a certain extent, they were able to prevent puerperal sepsis by giving a vitamin A concentrate, and that a lack of this vitamin is largely responsible for this serious form of infection. We have had no personal experience with this type of case, but it should be recorded that in the following year eighty-six patients in Glasgow [17] received treatment with vitamin A after the same manner, under the direction of Mellanby and Green, and that, "on the whole, it was concluded that although vitamin A may gradually increase the general resistance and the organismal infection may thus be controlled, this does not reach a degree sufficient to deter any but the least virulent types of sepsis, in which a similar effect could be obtained by less specific measures." Clausen has mildly advocated the use of vitamin A in the prophylaxis of respiratory infections in children, stating that carotene "may confer some degree of protection" and that this vitamin "is involved rather conspicuously" in these disorders.[18] The preponderating evidence in favor of the anti-infective virtue of this vitamin, however,

TABLE 5.—*Comparative Gain in Weight of Children Receiving and Not Receiving Vitamin A Supplement*

Group*	Age	No. of Infants†	Average Gain per Child During 5 Mos., Pounds
Vitamin A	0- 6 months	9	7⅛
Control	.....	11	7½
Vitamin A	6-12 months	30	2¾
Control	.....	31	3¾
Vitamin A	12-18 months	25	2⅛
Control	.....	28	2⅛
Vitamin A	18-24 months	19	1¼
Control	.....	15	1
Vitamin A	2- 3 years	26	1¼
Control	.....	25	1½

* Includes infants given haliver oil or carotene.
† Infants falling within two age groups have been included twice.

12. Hess, A. F., and Unger, L. J.: The Clinical Rôle of the Fat-Soluble Vitamin: Its Relation to Rickets, J. A. M. A. **74**: 217 (Jan. 24) 1920.
13. Moore, Thomas: Vitamin A and Carotene: IX. Notes on the Conversion of Carotene to Vitamin A in the Cow, Biochem. J. **26**: 1, 1932; **25**: 275, 1931.
14. Hess, A. F., and Myers, V. C.: Carotinemia: A New Clinical Picture, J. A. M. A. **73**: 1743 (Dec. 6) 1919.
15. The nurses as well as the physicians remarked repeatedly that the breath of infants receiving carotene in corn oil had an odor of onions, which was at times sufficiently strong to permeate the ward. Others have noted this peculiarity, which may take place even when the dosage of carotene is far less.
16. Mellanby, Edward, and Green, H. M.: Vitamin A as an Anti-Infective Agent, Brit. M. J. **1**: 984 (June 1) 1929.
17. Report of Medical Officer of Health Glasgow, 1930, p. 143.
18. Clausen, S. W.: The Influence of Nutrition on the Respiratory Infections of Infancy, New York State J. Med. **31**: 88 (Jan. 15) 1931; Carotinemia and Resistance to Infection, Am. J. Dis. Child. **42**: 698 (Sept.) 1931.

has not been clinical but has emanated from the laboratory. Interesting assays of the content of "blue units" of human livers have been carried out in various countries in the course of the past few years. Investigations of this character have been reported by Moore,[19] Wolff,[4] Fox,[20] Vogt [21] and others. In the main, livers have been assayed by means of the tintometer, with the object of ascertaining whether a definite distinction in unitage could be found between the livers of those who died by accident and those who succumbed to sepsis or other infection. In general, it may be stated that the figures varied greatly and that no parallelism could be observed. Underlying these tests there was always the unanswered question as to how much vitamin A had been consumed in the course of the infectious disease; in other words, to what extent the "blue units" represented the store in the liver previous to the fatal illness. The most recent publications are the article of Vogt, who concluded, as the result of a titration of some 300 livers, that sepsis did not deplete the liver, and that of Fox, based on an examination of seventy livers, who summarized his results to the effect that "vitamin A reserves are of far less importance than the virulence of the infection and the general condition of the patient." The only liver we have had an opportunity to assay was that of an infant who had been receiving haliver oil and viosterol for four months and died of pneumonia and meningitis. This organ contained 275 "blue units" per gram, which is an average amount.

Great caution must be exercised in making use of laboratory experiences in evaluating the clinical needs of the vitamins. One of the most surprising phenomena in connection with investigations in this new field of nutrition has been biologic variability, depending on species and numerous attendant circumstances. The requirement of the rat has too largely dominated the conception as to the vitamin requirement of human beings. And yet even the rat needs only infinitesimal amounts. As Mendel writes regarding the rat: "The vitamin A in the daily intake represents at most a magnitude of approximately one part in a million parts of body weight. Such are the amazingly small concentrations of certain chemical substances that spell well being versus the nutritive failure that ensues without them." [22] Laboratory workers are well acquainted with the difficulties associated with rendering the casein, in the standard deficiency ration, sufficiently vitamin free to bring about successfully xerophthalmia and cessation of growth. It has also been found that the pig, whose metabolism resembles that of man, also "has a vitamin A requirement of a very low order; if the animal gets an occasional run on pasture, there is no need to worry further about this vitamin." [23] Rice [24] found that enough vitamin A is stored in the sow during a protracted period of adequate feeding to supply the requirements of two litters of pigs up to weaning time.

We are not unaware of or insensitive to the fact that there are latent forms of the deficiency disorders. In fact, some twelve years ago one of us pointed out that "clear-cut disorders should not be regarded as the most common or important result of food deficiencies," and that physicians will have to address themselves to "obscure alterations of nutrition, ill defined functional disabilities, which cannot be characterized or even recognized as disease." [25] In regard to other vitamins, the optimal clinical requirement has been determined by ascertaining the amount required to cure or to prevent the specific nutritional disorder. A liberal additional quota has then been allowed in order to fix the clinical optimum; gaged from this point of view, the requirement of vitamin A for man or, more particularly, for infants does not seem to be great. We [26] have discussed this aspect elsewhere and shown that small amounts of whole milk, and even of boiled milk, will cure xerophthalmia rapidly or dispel nightblindness. No case of xerophthalmia has ever been reported as developing on whole milk, given in moderate quantity. An experience of Spence [9] is highly illuminating in this regard: "The first two cases were admitted to the hospital for this study, but it was found that although they were at first kept for a preliminary period on an experimental diet of skimmed milk, bread, margarine and jam, a rapid cure took place. It was apparently difficult to prevent a cure of xerophthalmia as soon as any alteration from their original diet was made, even though it was attempted to keep it free from vitamin A." Such is the factor of safety!

We do not believe that the average child requires any supplement of vitamin A above what it receives in 24 ounces (750 cc.) of milk. This opinion is partly based on the experience that supplements of vitamin A, whether in the form of carotene, haliver oil or cod liver oil, have brought about no benefit in growth, nutrition or immunity to infection. Our results cannot be attributed to an exceptionally high content of vitamin A in the dietary, as the milk in the institution is by no means of superior quality or high fat content. Nor is the interpretation relevant that our clinical results are so excellent that little improvement could be hoped for from an addition of vitamin A. On the contrary, as stated, respiratory infections were disturbingly frequent and pneumonia was a constant cause of worry.

Deficiency of vitamin A does occur when the dietary is anomalous; as the result of prolonged diarrhea, as in the Far East; as a complication of intestinal parasitism, as an accompaniment of chronic alcoholism, or associated with jaundice and other disturbances which retard intestinal absorption. As in the case of all vitamins, the demand is greatest during early childhood and probably again at puberty. But, as to a requirement of thousands of units of vitamin A daily, the unquestionable answer is that this constitutes therapeutic absurdity, which, happily, will prove to be only a passing fad.

CONCLUSIONS

Forty infants were given large amounts of carotene daily, forty were given large amounts of haliver oil and eighty no vitamin A supplement; all likewise received viosterol. In the course of an observational period of five months, frequent respiratory infections developed in all three groups, among those receiving vitamin A to the same extent as among the control group. Pneumonia and otitis media were not prevented. The blood in the carotene cases was saturated with the provitamin, as indicated by marked carotenemia. There is no

19. Moore, Thomas: Vitamin A Reserves of the Human Liver in Health and Disease with Special Reference to the Scope of the Vitamin as an Anti-Infective Agent, Lancet **2**: 669 (Sept. 24) 1932.
20. Fox, F. W.: Some Investigations Into the Vitamin A Content of the Livers of Native Mine Laborers, South African M. J. **6**: 689 (Nov. 12) 1932.
21. Vogt, E.: Vitamin Reserves of Female Organism, München. med. Wchnschr. **79**: 1570 (Sept. 23) 1932.
22. Mendel, L. B.: Vitamin A, J. A. M. A. **98**: 1981 (June 4) 1932.
23. Sheehy, E. J.: Minerals and Vitamins in Pig Feeding, Nutrition Abstr. & Rev. **2**: 221, 1932.
24. Rice, J. B.; Mitchell, H. H., and Laible, R. J.: A Comparison of White and Yellow Corn for Growing and Fattening Swine and Brood Sows, Bull. 281, Agri. Exper. Sta. Illinois, December, 1926.
25. Hess, A. F.: Newer Aspects of Some Nutritional Disorders, J. A. M. A. **76**: 693 (March 12) 1921.
26. Hess, A. F.: Diet, Nutrition and Infection, Acta paediat. **13**: 206, 1932.

clinical basis for considering or designating vitamin A the "anti-infective vitamin."

The addition of cod liver oil to the dietary did not reduce the number of mild respiratory infections occurring during the summer months.

Infections of the skin, impetigo, developed in the vitamin groups quite as often as in the control group.

Inquiry throughout the United States disclosed that nightblindness, the most delicate index of deficiency of vitamin A in the adult, is a very rare disorder and has not increased during the past few years.

Our dietary is not deficient in vitamin A. A lack may come as the result of vagaries of diet or when absorption is defective; for example, in diarrhea or jaundice.

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MYOCARDOSIS — A SYNDROME

ITS RECOGNITION AND THERAPEUTIC MANAGEMENT

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The nosology or description of heart disease has varied and kept pace with the changing conceptions of the underlying physiologic and pathologic processes. The physician meets with two general varieties of heart disease. In the younger patients valvular disorders prevail, usually the result of previous attacks of endocarditis, and are diagnosed most readily by physical methods of examination. Heart disease of the middle and later decades is largely the result of wear and tear, with nutritive disturbances affecting principally the cardiac musculature and leading to degenerative changes and replacement fibrosis. In this type of heart disease the subjective history often tells the story, although here electrocardiography has become a valuable aid in diagnosis. Various clinical terms have been proposed for this degenerative type of cardiac disease. The older designation of chronic myocarditis is not expressive or properly related to the existing disease condition.

Myocarditis implies a background of inflammatory phenomena, the sequel of the acute infectious diseases of childhood, rheumatic and streptococcic infections, which more frequently attack the valvular endocardium but may also involve the myocardium. Diphtheria, typhoid and the influenzal group of infections are further etiologic factors. Cardiac disease in the prime of life and the later decades is quite a different process. Its etiology is indefinite and clinically has no manifest or clear-cut physical signs until the later or terminal stages. Some years ago Christian [1] proposed the name chronic nonvalvular heart disease, yet admitting at the time that it was not entirely satisfactory. In 1926, Riesman [2] applied the term myocardosis to this form of heart disease, and later Hyman and Parsonnet,[3] in several comprehensive articles and a published volume, adopted this term as a generic designation signifying disease of the myocardium. In this discussion it is proposed to apply the term myocardosis to that concurrence of symptoms which precede the advanced stage when anatomic changes permit a more definite and expressive clinical designation.

During the last twenty years, as the result of the contributions of Herrick,[4] Pardee,[5] Levine,[6] Smith,[7] Conner,[8] Christian [9] and other American clinicians, distinctive and characteristic clinical pictures have been developed for the several advanced or terminal stages of chronic degenerative heart disease.

Acute coronary thrombosis is now recognized as a distinct clinical entity, and its prompt diagnosis is of common occurrence. Chronic coronary artery disease or coronary sclerosis, likewise, permits of ready diagnosis. Electrocardiography has proved of particular diagnostic value in acute and chronic coronary occlusion. Angina pectoris and coronary disease may occur in manifold relationships. A purely neurogenic form of angina pectoris is recognized, but a large majority of the cases of angina pectoris present the signs or changes incident to involvement of the coronaries, both clinically and anatomically.

Chronic mycardial failure or insufficiency is associated to a greater or less degree with each of the preceding three forms of chronic heart disease. Its symptomatology is familiar and requires no repetition at this time. The clinical onset in these forms is often of striking suddenness, occurring in individuals previously in apparently good health. Yet in each condition it is safe to assume the existence of basic anatomic changes in the myocardium that have required a long period, probably years, to develop. It is this developmental period or stage that is encompassed by the myocardosis syndrome. This comprises a large group of patients coming to the attention of the general practitioner, the dispensary or outpatient clinic and in a large consulting practice.

It is unfortunate in some respects that heart diseases have become a highly specialized field of medicine and to some extent been taken out of general practice. Mackenzie [10] always contended that the general practitioner, by reason of his first contact with cardiac cases and his familiarity with the habits and history of the patient, was able to detect the earliest signs of disease. The phenomena included in this syndrome are almost entirely subjective and have no definite sequence, yet considered concurrently they present a rather suggestive symptom complex of the early stages of myocardial disease. In a large measure these phenomena are expressive of a lowered myocardial reserve.

The need of a careful history is evident, and its completeness will depend on the art and ability of the examiner to draw out of the patient the essential subjective complaints. The history should include a careful investigation of previous infections, particularly such as could produce damage of the myocardium. Next, a familial tendency toward diseases of the circulation is important, and, lastly, a positive history of the various indiscretions of life which tend toward early vascular changes.

Read before the Section on Practice of Medicine at the Eighty-Fourth Annual Session of the American Medical Association, Milwaukee, June 14, 1933.

1. Christian, H. A.: Chronic Nonvalvular Disease of the Heart, J. A. M. A. **91:** 549 (Aug. 25) 1928.
2. Riesmann, David: Myocardial Weakness: Diagnosis and Treatment, M. Clin. North America **10:** 261 (Sept.) 1926.
3. Hyman, A. S., and Parsonnet, A. E.: Myocardosis, J. A. M. A. **94:** 1645 (May 24) 1930; New England J. Med. **204:** 648 (March) 26) 1931; J. M. Soc. New Jersey **28:** 831 (Nov.) 1931; Failing Heart of Middle Life, Philadelphia, F. A. Davis Company, 1932.
4. Herrick, J. B.: Thrombosis of the Coronary Arteries, J. A. M. A. **72:** 387 (Feb. 8) 1919.
5. Pardee, H. E. B.: An Electrocardiographic Sign of Coronary Artery Obstruction, Arch. Int. Med. **26:** 244 (Aug.) 1920.
6. Levine, S. A.: Coronary Thrombosis, Medicine **8:** 245 (Sept.) 1929.
7. Smith, F. M.: Ligation of Coronary Arteries with Electrocardiographic Study, Arch. Int. Med. **22:** 8 (July) 1918.
8. Conner, L. A., and Holt, E.: Subsequent Course and Prognosis in Coronary Thrombosis, Am. Heart J. **5:** 705 (Aug.) 1930.
9. Christian, H. A.: Cardiac Infarction (Coronary Thrombosis), Am. Heart J. **1:** 129 (Dec.) 1925.
10. Mackenzie, James: Symptoms and Their Interpretations, New York, P. B. Hoeber, Inc., 1918.

A proper estimate or interpretation of the patient's reaction to effort has further definite diagnostic value. Fatigability, tiredness, or cardiac fatigue is one of the early signs of myocardial weakness emphasized in the writings of Mackenzie, Riesman, Christian, Herrick, Hyman and Parsonnet. The patient expresses it as tiring or fatigue after the ordinary efforts or habits incident to his vocation and daily order of life. He states that he "is not as good as he used to be." Often there is added the element of fear or disinclination to perform the usual tasks. As the heart is a muscular organ continuously at work, fatigue should enter to some extent into its function. In the grueling contests of athletes, Mackenzie [10] believed that the blood supply was insufficient to carry on the excessive muscular work.

It may be assumed that with early changes in the coronary circulation the efficiency of the heart muscle will be manifest by cardiac fatigue. Wiggers [11] states that functional reactions in disease differ from those in health only in degree. There are no pathologic processes in disease capable of evolving new types of functional reactions. According to Wiggers, fatigue is due to decreased muscular efficiency, and sensations of fatigue are direct criteria of an oxygen debt and of the accumulation of lactic acid. The more rapid development of fatigue in the heart patient is due to the lessened efficiency of the circulatory system in supplying the needs of the muscles at work, so that the oxygen debt is incurred with less amount of work and lactic acid accumulates more rapidly. The inability of the diseased heart to compensate this circulatory inefficiency is due to loss of myocardial reserve. Meakins and Long have shown that the oxygen debt of a cardiac condition is paid off more slowly, and the recovery period is longer. A trip to a warm or tropical climate is more fatiguing to a cardiac patient than to a normal individual. Insomnia, likewise, may be an expression of myocardial weakness.

The mimicry of gastric symptoms in advanced coronary disease is well known, and it is logical that to a lesser degree this occurs in connection with myocardial weakness. These are expressed under the guise of loss of appetite, gaseous distention and a feeling of pressure in the upper part of the abdomen, the chemical and roentgen manifestations being negative. Riesman [12] has referred to them as gastric masquerades and adds that apparent disease in the upper part of the abdomen often has its seat of origin in the heart.

These somewhat vague phenomena may accompany or usher in that triad of symptoms which Kauffman [13] has termed the three steps to heart failure; viz., (*a*) breathlessness, (*b*) palpitation and (*c*) substernal discomfort.

Breathlessness is probably the most important feature of the myocardosis syndrome, but it again requires a fine distinction to determine whether this is a normal physiologic response or a pathologic manifestation. It is important to determine whether the change in functional response to certain effort tests such as climbing stairs, walking up a slight incline, and daily routine duties are phenomena that have not been noticed before. Often the return to the resting state will be longer and sometimes painful.

Long before the stage of circulatory failure is reached, the patient with heart disease differs apparently from normal persons only in the degree of muscular activity that brings on dyspnea and weakness. The normal individual is likewise not conscious of the vigorous normal movements of the heart, because he has become accustomed to them.

The signs of heart consciousness, as manifested by flutter, skipping beats, thumping and palpitations, occurring in middle life after a meal or physical effort, require careful evaluation. It is specially significant if they have not been noted previously. When associated with breathlessness and fatigue, it becomes an important part of the myocardosis syndrome.

The sensation of substernal discomfort is the one symptom that most frequently causes the patient to seek medical advice. Like the expression "heart consciousness," it is a sensation that is difficult for the average patient to describe. Some express it better than others. The sensations apparently may extend from a mere feeling of heaviness over the upper part of the chest to the terrible viselike constriction experienced in certain forms of angina pectoris. Herrick [14] has referred to it as a mild type of angina. That it is invariably associated with physical effort still further confirms this relationship.

Substernal discomfort or distress, unlike breathlessness and palpitation, is rarely masked under any other guise. It is localized more frequently to the left than to the right of the upper part of the sternum, and radiation is uncommon.

Certain vasomotor disturbances are a part of the syndrome, such as vertigo, giddiness, syncope and occasionally convulsions. These occur often with simple postural changes—lacing a shoe, bending forward suddenly or other movements incident to the occupation of the patient. Again, such psychic phenomena are noted as mental haziness, impaired memory, stupor, drowsiness and hallucinations of sight, hearing and smell.

The following case illustrates some of these features:

Mr. B., aged 65, an attorney, in November, 1927, while in the court room suddenly became faint, dizzy and unconscious for thirty minutes, during which time a severe right sided convulsion developed. This was followed by paresis in the right arm and symptoms of aphasia, which cleared up in a few days. Several lighter attacks occurred during the next two weeks. While under hospital observation it was possible to differentiate the condition from cerebral tumor, epilepsy and cerebrospinal syphilis. A diagnosis of cardiovascular disease was regarded as most probable, yet there were few positive signs. In the succeeding period light fainting attacks occurred several times a year, usually under great mental strain. Lapses of memory were also noted. Within the past two years the patient has complained of anginoid chest pains with physical exertion. Several electrocardiograms, taken in 1932 and this year, are characteristic of coronary artery disease.

The sequence of clinical phenomena bears out the statement of Wiggers that the cerebral cortex is the most sensitive indicator of circulatory insufficiency.

Recent investigations have shown that the metabolism of the brain does not differ greatly from that of other tissues. The rate of lactic acid formation in the brain tissue appears to be higher than that of the body as a whole, and the normal blood flow per gram of brain substance is larger than that for skeletal muscle, heart, liver or spleen. It is not surprising, therefore, that cerebral activity should be seriously affected in con-

11. Wiggers, C. J.: Physiologic Meaning of Common Clinical Signs and Symptoms in Cardiovascular Disease, J. A. M. A. **96:** 603 (Feb. 21) 1931.

12. Riesman, David: Myocardial Disease and Gastric Masquerades, J. A. M. A. **91:** 1521 (Nov. 17) 1928.

13. Kauffman, R.: Ueber Probleme des Koronararterien Kreislaufs, Wien. klin. Wchnschr. **39:** 437 (April 15) 1926.

14. Herrick, J. B.: Angina Pectoris, Northwest Med. **24:** 360 (Aug.) 1925.

ditions of reduced myocardial reserve as well as in advanced stages of decompensation.

While the subjective phenomena constitute the essential part of the myocardosis syndrome, certain physical or objective signs have an important relation to it. They are also frequently significant of impaired myocardial reserve. An enlargement of the heart has been considered by Stroud,[15] Christian [16] and other observers as significant of beginning myocardial weakness and indicating a diminution of myocardial reserve. The determination of the extent of enlargement of the heart is one of the most important single procedures in cardiac diagnosis.

While the tendency is to a most complete use of the x-ray in examination of the gastro-intestinal tract, it receives much less consideration in cardiac disease, although it is of equal importance. By means of the fluoroscope, orthodiascope, six foot roentgenograms and signs of either right or left ventricular preponderance in the electrocardiogram, definite evidence is presented of the degree of cardiac enlargement. In contrast to this, it should be noted that occasionally in extensive coronary artery disease little if any cardiac enlargement is present. The value of blood pressure changes as the result of physical exertion has been variously interpreted. No satisfactory exercise test has yet been devised. An elevation of 20 mm. of mercury after one of the customary exercise tests is regarded as a sign of myocardial weakness. A change in the pulse rate after exertion is also regarded as having some diagnostic significance. When the pulse rate requires longer than five minutes to return to the resting figure, it suggests an impairment of myocardial reserve.

Of more importance is the cardiorespiratory test, to represent graphically the measured heart load, introduced a few years ago by Dr. Harold M. Frost [17] of the medical department of the New England Mutual Life Insurance Company. The apparatus used consists of two elements: a vacuum-pressure Tycos gage and a Simplex spirometer. The test consists of a series of steps, with a brief interval of ten seconds after each one, during which the systolic pressure is recorded, forming the so-called base line. A condition of increased intrathoracic pressure is produced by a full inspiration, which causes an initial short rise followed by a drop of 20 mm. of pressure. A full expiration then produces a condition of decreased intrathoracic pressure, followed by an initial decline of systolic pressure, and then a gradual rise of from 5 to 10 mm. above the original level. In the next step the subject blows against the gage, maintaining a positive pressure of 40 mm. of mercury for ten seconds, after which a negative pressure of 25 mm. of mercury is maintained by inhaling against the gage. In the final step the subject takes a deep inspiration and then exhales by blowing as long as possible through a spirometer, maintaining a positive pressure of 20 mm. of mercury throughout the expiration. In the normal person the systolic pressure continues to rise from 20 to 50 mm. above the original level. In conditions of myocardial weakness or lowered myocardial reserve, the final rise is limited to 10 or 20 mm., or the rise cannot be maintained and a marked drop may occur toward the close of the expiratory act.

This test is extensively used by the examiners of this insurance company, and it was through the courtesy of the local examiner, Dr. D. J. Glomset, that I was permitted to judge of its value in a rather large series of observations. In clinics and large medical services in which spirometer tests for vital capacity are a routine practice, information has been collected indicating that it has definite objective value. Soma Weiss [18] states that an early reduction of vital capacity of the lungs is an early sign of circulatory insufficiency.

The reports of recent observations on venous pressure indicate that it has a significant relation to the dynamics of the failing heart. Eyster [19] reaches the conclusion that venous pressure is clinically an index of cardiac function and that its clinical significance is largely confined to the one condition of impending or present cardiac incompetence. Venous pressure in cardiac insufficiency varies from the upper normal level to 300 mm. of water or more. The extent of the failure is roughly proportional to the rise, and the clinical progress of the patient and the prognosis of the condition are largely revealed by the trend of venous pressure. Frequently a change in venous pressure precedes other clinical signs. Cardiac incompetence has been described as that condition in which the venous pressure exceeds the range within which the heart is capable of responding by increased work to an increased venous load.

ELECTROCARDIOGRAPHY

The electrocardiograms in the early stages of myocardial disease have thus far not been regarded as of especial significance. Signs of conduction disturbance and changes in the ventricular complex are most likely. Left axis deviation is found so frequently in middle and advanced age periods that many observers regard such a sign as normal; yet, on the other hand, interesting studies have been reported by Luten and Grove,[20] and more recently by Hyman and Parsonnet,[21] that are very suggestive. In observing the development of bundle branch block from the beginning, they noted that the cases showing early left axial deviation with altered T waves in the first lead later developed into full blown bundle branch block. As more frequent and serial electrocardiographic studies are made, particularly as additional leads will clear up the silent areas, it is reasonable to expect that early changes will be noted of diagnostic value.

A series of subjective and objective signs are included under the generic term of myocardosis syndrome. Considered separately, each phenomenon is not diagnostic, but taken concurrently they form a clinical picture that permits of ready recognition. It is mainly expressive of the myocardial reserve of the heart, which is an important factor in the complicated mechanism of the circulation. The syndrome likewise is suggestive of early anatomic changes in the myocardium. In that respect it opens up a field of fruitful investigation and, furthermore, offers the most alluring prospect in the study of the various phases and stages of coronary disease now beyond our ken.

THERAPEUTIC MANAGEMENT

The recognition of the myocardosis syndrome entails a considerable responsibility on the attending physician. The public has a greater fear of heart disease than of

15. Stroud, W. D.: Estimating Myocardial Reserve, Am. Heart J. **1**: 354 (Feb.) 1926.
16. Christian, H. A.: Chronic Myocardial Insufficiency, Ann. Int. Med. **5**: 95 (Aug.) 1931.
17. Frost, H. M.: Publication New England Mutual Life Insurance Company, 1926, p. 136.
18. Weiss, Soma: Circulatory Adjustments in Heart Disease, Ann. Int. Med. **5**: 100 (Aug.) 1931.
19. Eyster, J. A. E.: Venous Pressure, J. A. M. A. **97**: 1269 (Oct. 31) 1931.
20. Luten, D., and Grove E.: Bundle Branch Block, Am. Heart J. **4**: 431 (April) 1929.
21. Hyman, A. S., and Parsonnet, A. E.: Bundle Branch Block, Arch. Int. Med. **45**: 868 (June) 1930.

any other disease except cancer or perhaps syphilis. As Herrick [22] says, it is easy to sow the seed of fear of heart disease. Phobias may be started and neurotic individuals made more neurotic, with a consequent lessening of their activities and happiness. Yet the fullest cooperation of the patient is needed if during this period any attempt is to be made to curb or combat the relentless progression of the vascular degenerative changes in the heart peculiar to the middle and later decades of life. It is of primal importance that the patient accept the view that the aging process is a physiologic change and does not permit the same activities as in younger years. When the condition clearly indicates an encroachment on the normal myocardial reserve, rest should be the main essential in outlining a proper regimen of living.

Many false notions prevail as to the value of certain prescribed athletic or physical culture exercises intended to keep a person "fit and in trim." In myocardial fatigue they may be distinctly harmful. To sit in an office chair or to be confined to a drugstore most of the year and then go on a brief vacation consisting often of a strenuous hunting trip has brought many a heart to a standstill. Experience makes it wiser to play only nine holes of golf instead of the full course. In prescribing exercise for a patient of this type, the length of the rest period to follow is as important a consideration as the degree of exercise itself. Direction as to change in the usual mode of living may be necessary and, particularly, a curtailment of the many social, civic and public responsibilities that form so much of the "goat feathers" collected by the public spirited men and women of our day.

Special care must be given to general disorders as potential and active diabetes, the anemias, functional digestive disorders and obesity. The removal of infective foci such as dental abscesses, diseased tonsils, sinusitis and hemorrhoids is to be considered.

Periodic examinations and encouraging conferences with the patient are an important part of the management.

The proper appreciation of the myocardosis syndrome offers the one hope to modify and possibly control the tendency to progressive and more serious myocardial damage, and, above all, it opens up a new field in preventive medicine that is worthy of our best efforts.

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ABSTRACT OF DISCUSSION

DR. R. I. RIZER, Minneapolis: The point Dr. Bierring makes of the early recognition of myocardosis opens a large field in preventive medicine. Often an individual about to take up some important work or to go on a journey wishes to know his exact physical status. Beside the clinical observations and the procedure Dr. Bierring has brought out, my associates and I are trying the roentgenologic method of Eyster and the iodide method of Starr to determine cardiac function. From the results to date I believe we are going to be more able to tell the patients just what they may expect and to what extent they will have to curtail their activities, if at all. Dr. Bierring speaks of the sensations of fatigue as a direct criterion of oxygen deficit and of accumulation of lactic acid. In 1928 I made a report of work I had been doing with oxygen in cases of pain in coronary occlusion. After administering oxygen to patients with coronary occlusion who were suffering extreme pain and after having obtained relief for all of them, I have come to the conclusion that the pain is due to anoxemia of the heart muscle. In this series there were three who developed pain following the relief from the primary pain. They showed a fading pulse and a peculiar electrocardiogram. These three died, and the autopsies confirmed the diagnosis of rupture of the heart muscle. Lactic acid is one of the results of anoxemia, and in the series of experiments I have not found that lactic acid produced symptoms in the heart muscle or in the peripheral system. I have found that acute respiratory infections have been the precipitating cause of coronary occlusions.

DR. CADIS PHIPPS, Boston: There is the question as to the relationship of previous (youthful) myocardial degeneration to myocardosis. In going over some 600 autopsies at the Boston City Hospital I found that rheumatic heart disease was present in not over 10 per cent of the cases of myocardosis and in these it seemed coincident rather than causative. Apparently myocardosis is secondary to arterial degeneration in at least 90 per cent of the cases. Dr. Bierring spoke of blood pressure in the diagnosis. With a Pachon oscillometer it has seemed that the so-called dynamic mean pressure of Marey was of importance. Excluding all cases of hypertension, I feel that a persistently elevated mean pressure in the presence of normal diastolic and systolic pressures is indicative of cardiac degeneration. In respect to the treatment, rest is of great importance, but as I recall an early monograph, the term "professorial disease" was used, suggesting its association with a sedentary life. All are familiar with the cardiac exercises of Oertels and Herz, based on gradual or accustomed exertion, and this seems exemplified in my experience with cardiac cases examined impartially for the Massachusetts Industrial Accident Board. I was impressed by the fact that workmen who were obliged to continue with their work for financial reasons obviously had not only a better expectancy of life but also a better cardiac function when compared with a similar group of so-called private cardiac patients. It seems that exercise, to some extent, has its value. I will not discuss the routine use of digitalis for myocardosis other than to mention an excellent editorial recently in THE JOURNAL, which, however, did not include the work of Gilbert and Fenn, who showed the possibility of digitalis producing coronary spasm, particularly in hearts already diseased. I believe the treatment is largely that of intercurrent illnesses. In respiratory diseases the mechanical as well as the toxic side must be considered, as is also done in gastro-intestinal disturbances, with their possibility of causing splanchnic engorgement and a resulting cardiac anoxemia. Rapid dehydration with increased coagulability of the blood may precipitate cardiac failure. In general, the treatment of myocardosis must be looked on as the treatment of arthritis is; namely, care of the entire body rather than of one organ or system.

DR. WALTER L. BIERRING, Des Moines, Iowa: My main object in this paper was to bring into direct contrast that period which precedes the anatomic changes, recognized in the clinical expressions of acute or chronic coronary occlusions, certain forms of angina pectoris and chronic myocardial insufficiency. A further purpose was to direct attention to this preceding period and to determine whether, by following the teachings of Mackenzie, a failing or weakened heart might not be recognized earlier than at present. This offers the most fruitful source of investigation, first, in determining the earlier phases of coronary disease, and secondly, in opening up a new field in preventive medicine. Rest is very essential, but, as stated in the discussion, there can be too much rest. The heart as a muscular organ must be kept active. Therefore, some regulated form of work is more beneficial than complete rest. A modification of the patient's habits and activities is important, particularly the relief from the various civic and social duties required of public-spirited men and women of our day. Digitalis has a definite place in the treatment of enlargement of the heart, indicating, as it frequently does, an early stage of myocardial failure. Myocardosis is a generic term and most expressive of the early subjective symptoms, being indicative of lowered myocardial reserve or lowered circulatory efficiency. Its recognition constitutes the best hope of arresting or, to some extent, relieving the cardiac degenerative changes which are more or less physiologic in the middle and later decades of life.

22. Herrick, J. B.: Common Errors in Treatment of Heart Disease, J. M. A. Georgia **20**: 335 (Sept.) 1931.

ACUTE DISSEMINATED ENCEPHALOMYELITIS

ITS CLINICAL MANIFESTATIONS AND SEQUELAE

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Probably nothing in contemporaneous neurology offers as many nosologic difficulties as the acute focus-producing diseases of the brain and spinal cord. There is much overlapping of symptomatology, and the pathologists do not agree on a satisfactory morphologic delineation. The bacteriology of many of these disorders is an unwritten chapter. It would appear from a study of such reports as those of Redlich,[1] and of Flateau,[2] which include a larger number of cases, that such conditions as myeloradiculitis,[3] polyradiculoneuritis,[4] acute benign infectious myelitis [5] and possibly neuromyelitis optica aigue or ophthalmoneuromyelitis can safely be interpreted as subsyndromes within the protean manifestations of acute disseminated encephalomyelitis. Those who would keep out of the maze of recent controversies would do well to review the conservative and comprehensive discussion by Oppenheim [6] in his textbook.

TABLE 1.—*Analysis of Twenty-Eight Cases of Acute Disseminated Encephalomyelitis*

Case	Sex	Age	Date of Onset	Respiratory Infection	Latent Period (Period of Invasion)	Development of Neurologic Signs
1	M	34	June, 1922	No	.....	.....
2	M	37	June, 1925	No	.....	3-4 days
3	M	25	Oct., 1929	Yes	A few days	A few days
4	F	33	March, 1931	Yes	12 days	3 days
5	M	36	Aug., 1931	No	.....	.....
6	F	30	Dec., 1931	No	.....	15-18 days
7	M	50	Jan., 1932	No	.....	A few days
8	F	23	Feb., 1932	No	.....	6 weeks
9	M	37	March, 1932	No	.....	4 weeks
10	M	13	April, 1932	Yes	5 days	7 days
11	F	27	May, 1932	No	4 days	A few days
			Herpes labialis			
12	F	41	May, 1932	Yes	4 days	2-3 weeks
13	F	44	July, 1932	No	.....	5 days
14	F	34	July, 1932	No	.....	1 week
			Herpes labialis			
15	F	24	Aug., 1932	Yes	5-7 days	3 days
16	F	53	Oct., 1932	No	.....	2 days
17	M	33	Nov., 1932	Yes	14 days	3-4 days
18	M	34	Dec., 1932	Yes	9 days	4 days
19	M	9	Dec., 1932	Yes	21 days	7 days
20	F	13	Jan., 1933	Yes	14 days	3 days
21	F	63	Jan., 1933	No	.....	8 days
22	F	37	Jan., 1933	Yes	5 days	21 days
23	F	47	Jan., 1933	Yes	14 days	3 days
24	M	14	Feb., 1933	Yes	14 days	2 days
25	F	12	Feb., 1933	Yes	18 days	3 days
26	M	49	Feb., 1933	No	.....	14-21 days
27	M	33	Feb., 1933	Yes	Unknown	Unknown
28	M	61	March, 1933	Yes	24 days	7 days

The twenty-eight cases reviewed in this series have been approached with this broad concept in mind. Post-exanthematous and postvaccinal encephalomyelidites have been excluded from consideration because of the etiologic controversies involved. Infection of the upper respiratory tract was a prominent feature in the histories of these patients, preceding the onset of neural manifestations in 5 per cent of the series. This illness ranged from a mild coryza to a severe influenza-like condition, in one instance complicated by bronchopneumonia. The latent period between the onset of the respiratory infection and the development of neurologic symptoms and signs varied from four to twenty-four days, in most cases ranging from five to fourteen days. This was regarded as the period of invasion of the nervous system analogous to the preparalytic stage of anterior poliomyelitis.

TABLE 2.—*Symptoms and Signs of Acute Disseminated Encephalomyelitis; An Analysis of Twenty-Eight Cases*

Sensory manifestations		26
Pains in legs	11	
Pains in other parts of body	11	
Hypesthesia	9	
Hyperesthesia	2	
Anesthesia	1	
Numbness	7	
Other paresthesias	9	
Girdle sensations	2	
Astereognosis	6	
Motor disturbances		24
Weakness, subjective	24	
Paralysis or paresis of extremities	24	
Spastic	12	
Flaccid becoming spastic	6	
Flaccid with recovery	6	
Disturbance of sphincter control		12
Cranial nerve involvement		16
II	3	
III	2	
V	4	
VI	7	
VII	8	
Facial diplegia	3	
VIII	4	
IX and X	7	
XII	4	
Encephalitic signs		
Headache	9	
Nausea	7	
Vomiting	3	
Kernig's	2	
Rigid neck	5	
Opisthotonos	1	
Photophobia	2	
Pleocytosis in spinal fluid (17 cases examined)	8	
Diplopia	10	
Nystagmus	6	
Blurred vision	2	
Insomnia	6	
Drowsiness	5	
Stupor	10	
Depressed	1	
Confused	3	
Irrational, delirious	2	
Maniacal	4	
Receptive aphasia	5	
Memory defect	3	

By far the most consistent features of the early stage of encephalomyelitis are sensory derangements and muscular weakness. Shooting pains in the back, radiating along the course of the sciatic nerves, frequently apprised the patient of the onset of involvement of the nerve. An attempt to produce Lasègue's sign was often painful, and sciatica was commonly the first clinical diagnosis. In other cases dysesthesias, such as tingling, numbness and pin-and-needle sensations, accompanied by a severe muscular weakness or rapidly developing paralysis, ushered in the acute phase. In a smaller group delirium, headache and drowsiness, or a confused and depressed or stuporous mental state, dominated the active phase of the disease. The neurologic manifestations in the majority of cases reached a maximum intensity in less than a week. In a few cases the onset

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1. Redlich, E.: Ueber ein gehäuftes Auftreten von Krankheitsfällen mit den Erscheinungen der Encephalomyelitis Disseminata, Monatschr. f. Psychiat. u. Neurol. **64:** 153 (July) 1927.

2. Flateau, E.: Sur l'épidémie d'inflammation disséminée du système nerveux en Pologne durant l'année 1928 et sur ses rapports avec l'encéphalite léthargique, les atteintes du systèm nerveux au cours de certaines maladies infectieuses et les cas aigue de sclérose en plaques, Encéphale **24:** 619 (July-Aug.) 1929.

3. Strauss, Israel, and Rabiner, A. M.: Myeloradiculitis, Arch. Neurol. & Psychiat. **23:** 240 (Feb.) 1930.

4. François, Zuccoli and Montus: Sur en cas de polyradiculo-neuritic curable avèc disassociation albino-cytolique, Rev. neurol. **36:** 95 (Jan.) 1929.

5. Sands, I. J.: Acute Benign Infectious Myelitis, J. A. M. A. **96:** 23 (Jan. 3) 1931.

6. Oppenheim, H.: Textbook of Nervous Disease, ed. 5, translated by Alexander Bruce, London, T. N. Foulis, 1911.

was more insidious, with new symptoms appearing over a period of several weeks.

Examination frequently revealed objective sensory disturbances such as (1) a hypo-esthesia for all qualities of sensation of a peripheral neuritic distribution, (2) diminution or absence of all forms of sensation below a definite segmental level with or without girdle pains or bands of hyperesthesia, (3) impairment of muscle, tendon and joint sense manifested by ataxia and astereognosis or (4) bizarre admixtures of these types.

The motor phenomena in the active phase were equally diversified. As previously indicated, muscular weakness occurred in over 90 per cent of the cases. A spastic or a flaccid paralysis or paresis was encountered with equal frequency at the first examination. In many

TABLE 3.—*Study of the Spinal Fluid*

Case	Time After Onset of Symptoms	Cells	Globulin	Mastic	Sugar Mg. per 100 Cc.	Chlorides, Mg. per 100 Cc.
2	5 yrs.	2	0	0000000000	....	...
5	.....	Normal	Positive	5543210000	....	...
7	5 mos.	5	+++	2232100000	....	...
	6 mos.	..	0	0000000000		
8	2 mos.	20	+	3221000000	....	...
			++	3211000000		
9	1 yr.	3	++++	4443100000	61.0	638
10	1 wk.	Normal	++	2343210000	....	...
12	1 mo.	24 hrs.	+	2100000000	....	...
13	1 wk.	10	++	0000000000	....	...
14	1 wk.	32	0	0000000000	....	...
15	3 days	Normal	0	.....	....	...
16	11 days	8	+	0000000000	....	...
	14 days	0	++++	1222100000		
17	2 wks.	41	+++	3331110000	....	...
18	3 days	2	++++	0000000000	....	...
	7 days	6	++++			
	9 days	4	++++	2332100000		
	15 days	4	+++	.....	66.2	636
20	3 days	14	Negative	.....	....	...
	9 days	12	++	3443210000	76.0	722
21	5 days	35	++	2343221100	....	...
23	30 days	19	+	.....	....	...
	32 days	10	+			
	35 days	13				
24	3 wks.	2	++	1100000000	57.8	643
25	3 days	1	0	.....	....	...
	11 days	6	++			
26	8 wks.	3	++++	3210000000	....	...
	13 wks.	6	++++	4421000000	68.5	700
27	3 wks.	15	0	0000000	....	...
28	14 days	51	Positive	.....	....	...

the tendon reflexes, abolished during the early course of the disease, probably because of the ictus-like onset, later became hyperactive; in others, this atony persisted and slowly improved, and was regarded as evidence of anterior horn cell or of neuritic involvement.

In most cases, in addition to these sensory and motor derangements of the spinal cord, there was some focal involvement of the cranial nerves. Blurred vision, spots before the eyes and a painful eyeball were isolated subjective complaints. Examination of the eyegrounds usually revealed nothing more than slight hyperemia and haziness of the disk margins; in three cases a definite optic neuritis was seen. Symptoms and signs of involvement of the trigeminal nerve were uncommon, but hyperesthesia, numbness, sluggish corneal reflexes and motor weakness were found in a few instances. Diplopia was one of the most common subjective symptoms, and was usually explained by a demonstrable palsy of the abducens nerve. The most common lesion of the cranial nerves was an incomplete facial paralysis. Three patients presented a facial diplegia, a symptom not frequently referred to in the literature, although François, Zuccoli and Montus reported a case, and Wilson and Robertson [7] reported three cases associated with an extensive polyneuritis. Mild auditory impairment was occasionally encountered, but deafness was not an outstanding symptom. Almost one third of the patients in this series had some difficulty in talking, swallowing, coughing and expectorating, showing signs of involvement of the glossopharyngeal, vagus and hypoglossal nerves. Two of the three deaths in this series can be attributed to bulbar palsy, and one woman without premonitory cranial nerve symptoms died with a heart block, which may or may not have been of medullary origin.

At times diencephalic features, such as drowsiness, disturbance of the sleep rhythm and clouding of the sensorium, accompanying diplopia and palsies of the cranial nerves, produced a clinical picture resembling epidemic encephalitis. Occasionally mental conditions overshadowed or dominated all other symptoms. These mental states varied from insidious psychoneuroses and mild depressions or manic excitements, to confused, irrational and delirious states suggesting a wet brain. A receptive aphasia was occasionally seen. Emotional lability with a mild depression punctuated by short confusional states most commonly characterized the course of the illness during the active phase and sometimes continued into the convalescence. In no instance was the peculiar euphoria sclerotica so characteristic of multiple sclerosis encountered.

Clinical signs of meningeal irritation of mild degree were not infrequently seen, but rarely was there an actual clinical meningitis. A mild lymphocytic pleocytosis in the spinal fluid was seen in about one half of the patients examined during the acute stage. None of these patients showed a hemorrhagic or xanthochromic spinal fluid, such as was seen by McIntyre [8] in a recent epidemic of an unusual encephalopathy. The protein content was usually moderately increased, and the colloidal reaction was either a low parenchymatous (syphilitic zone) curve, or entirely flat. An albuminocytologic dissociation in the spinal fluid was frequently but not invariably seen. Two patients with the clinical syndrome of a transverse myelitis showed positive manometric and roentgen evidence of an incomplete spinal subarachnoid block, and were thus similar to the seventh patient of Strauss and Rabiner.

REPORT OF CASES

CASE 1.—*Peripheral polyneuritic type; following severe coryza, rapid onset of symptoms referable to the sciatic nerves; bilateral peripheral facial palsy; little evidence of involvement of the central nervous system; recovery in two or three months.*

History.—A. M., aged 33, who had been in excellent health, developed a severe cold about Oct. 30, 1932, which left a residue of malaise. Two weeks later he noticed a sensation of numbness in his feet, and shortly after that shooting pains in his legs. The next day he noted a lack of feeling in the urethra on urination and an incontinence of feces. On the third day the numbness had extended up his legs, which became so weak that he was unable to control them, and he had to be transported home from work. Lasègue's sign was positive, and the family doctor made a diagnosis of sciatica. The next day Bell's palsy was observed on the left side; twenty-four hours later, the right facial nerve was similarly involved.

7. Wilson, G., and Robertson, H. F.: Facial Diplegia in Polyneuritis, Am. J. M. Sc. **183:** 680 (May) 1932.

8. McIntyre, H. D.: An Unusual Encephalopathy, Probably Infectious in Origin, J. A. M. A. **100:** 1097 (April 8) 1933.

Examination.—The only abnormal signs aside from those of the neuromuscular system were swollen, hyperemic tonsils with follicular exudation. There was weakness of the left lateral rectus muscle, lateral nystagmus and bilateral Bell's palsy. The patient talked as if his mouth were full of food. Hearing was definitely diminished on the left side. The upper extremities were moderately paretic; reflexes were weak but preserved, and there were no sensory defects. In the lower extremities there was a severe loss of muscle power; tendon reflexes were absent, and there was an impairment of touch and pressure sense. Pain sense was markedly impaired over the first sacral dermatome on both sides, and the first and second lumbar segments on the right. Abdominal, cremasteric and plantar reflexes were abolished. There was marked impairment of muscle, tendon and joint sense and marked astereognosis. Lasègue's sign was positive.

Laboratory Data.—The spinal fluid contained 41 cells. The Pandy test was 4; the colloidal mastic curve, 3331110000 and the Wassermann reaction, negative.

Course.—The patient slowly improved, and two months later the only residual manifestations were absent achilles reflexes; paresthesia over the soles and the hands; slight pain on stretching the sciatic nerves, and some weakness of the upper extremities. He is now subjectively and objectively completely recovered.

CASE 2.—*Transverse myelitic type; rapid onset of thoracic transcord lesion; peripheral neuritic involvement of hands; incomplete subarachnoid block; transitory Argyll Robertson pupils during convalescence; residue of ataxia, spasticity, neuralgic pains and cerebellar asynergy.*

History.—J. S., aged 37, had been in good health until March 20, 1932, when he noticed that his right foot began to feel cold. When he soaked his feet in hot water, his left foot felt warm, but not his right. One morning three weeks later he was unable to arise from bed. His legs and abdomen felt numb, and he could not move his lower limbs. He suffered a superficial burn over his right hip while sitting too close to a heater. He had severe obstipation and urinary retention.

Examination.—There was paralysis of both legs with hyperactive tendon reflexes, a right ankle clonus and a weak Babinski sign on the left. The cremasteric and abdominal reflexes were abolished. There was marked hypesthesia for brush and pin-prick, and thermanesthesia below the fourth thoracic segment bilaterally. Vibratory sensation was abolished over the pelvis and lower extremities. The patient had greatly diminished power in both hands. He had hypesthesia for brush and pin-prick over both hands and wrists. Manometric studies of the spinal fluid revealed an incomplete subarachnoid block which was localized by iodized poppy seed oil 40 per cent at the eighth thoracic segment.

Course.—The patient improved rapidly, and one month later retained only slight hypesthesia to heat and cold in the left ankle and to pin-prick and brush in the left hand. The abdominal reflexes were now obtained on the left, but not on the right side. The tendon reflexes in the lower extremities were slightly hyperactive and the plantar responses weakly extensor. The patient walked with a slight ataxia. His power of grip had more than doubled. He had no urinary or rectal disturbances.

He was discharged from the hospital on May 24, but returned to the outpatient department, June 30, complaining of neuralgic pains in his arms and back, accompanied by some rigidity of his lower extremities. Bilateral Argyll Robertson pupils were noted. These had disappeared by October 4, but neuralgic pains had appeared in the left intercostal region and the left leg.

After eleven months he still complained of pains in the trunk and legs. Hypesthesia to tactile and painful stimuli was found over the fingers and the feet and legs, of peripheral neuritic distribution. There was marked hypertonus of the legs with a Babinski sign on the right. The abdominal and left cremasteric reflexes were absent. The patient showed a motor weakness and an awkwardness for fine movements of both arms and legs, the right side being more severely affected. There was a suggestive Romberg sign.

At present, a cerebellar gait with increased ataxia, a positive Romberg sign, marked intention tremor and adiadokokinesis are residual features.

CASE 3.—*Bulbar type; following mild paresthesias of the hands for from four to six weeks, a myeloradicular syndrome accompanied by a fulminating and rapidly fatal bulbar palsy.*

History.—Mrs. M. H., aged 63, became acutely ill with severe pain of a constant, pushing nature below the tip of the right scapula. In retrospect, she described glovelike paresthesias of the hands for the past six weeks. Four days after the onset of acute symptoms, she became so weak that she was unable to stand, and had marked impairment of speech. She also had urinary retention and obstipation.

Examination.—She had both lateral and vertical nystagmus, bilateral paresis of the motor division of the trigeminal nerve, bilateral incomplete peripheral facial palsy, an absent gag reflex and feeble elevation of the soft palate. Speech was bulbar in type and barely intelligible. All superficial and tendon reflexes, including the plantar, were entirely abolished. There was hypesthesia for painful stimuli below the third thoracic segment on the right and the fifth on the left. Discriminatory sense was diminished below the right clavicle and on the left over approximately the second to the sixth thoracic segments, and below the knee. There was a severe impairment of muscle, tendon and joint sense, with marked ataxia of both hands and legs and astereognosis.

Laboratory Data.—The spinal fluid cell count was 35; the pressure, 18 mm. of mercury; the Pandy test, 2; the colloidal mastic curve, 2543221100; the Queckenstedt test, negative, and the Wassermann reactions of the blood and spinal fluid, negative.

Course.—The patient became progressively worse with death on the tenth day of acute illness from bulbar palsy with a terminal pneumonia. Permission for autopsy was refused.

CASE 4.—*Encephalitic type; following generalized pains in the extremities and herpes labialis, a rapidly developing stuporous state resembling epidemic encephalitis; recovery from cerebral manifestations with a residue of posterolateral involvement of the spinal cord.*

History.—M. M., aged 34, with an uneventful past history, except for a migratory rheumatism five years previously, became ill with vague prodromal symptoms on July 14, 1932. The next day she could not get out of bed. She had generalized pains in the feet, legs and arms, and occasionally a sensation of numbness in the fingers. Her ankles felt "as if they were broken." These pains were subjectively different from arthritis. She had a high fever, and her mental state became progressively dull, reaching a profound stupor with short subdelirious intervals when admitted to the City Hospital one week later.

Examination.—The patient was in a semicomatose condition with a temperature of 40 C. (104 F.). The pupils were dilated, the left more so than the right, and the pupillary reactions were sluggish. Examination of the eyegrounds showed hyperemia, but no actual papilledema. A marked photophobia was present. There was severe herpes labialis. The throat was septic. There was no nuchal rigidity. The lungs were clear. A systolic murmur was heard over the apex of the heart. There were a few herpetic lesions on both thighs. The Kernig signs were negative. There were no paralyses or objective sensory abnormalities. Abdominal reflexes were absent. There was an absent patellar reflex and a suggestive Oppenheim sign on the left side.

Laboratory Data.—The spinal fluid contained 32 cells. The Pandy test reaction was negative and the colloidal mastic curve, flat. The Wassermann reaction of the blood and spinal fluid was negative. There was febrile albuminuria.

Course.—The patient was incontinent, did not talk and had difficulty in swallowing. Her temperature became normal in a week, and her stuporous and subdelirious state rapidly improved. She was discharged from the hospital on Aug. 8, 1932, mentally clear, but with an ataxic gait. She had occasional pains in her feet and difficulty in walking, but improved steadily.

When reexamined nine months later she showed a marked weakness of all extremities. Her gait was slightly spastic and very unsteady. The tendon reflexes were somewhat hyperactive. The abdominal reflexes were weak, and there was a weak Babinski sign on the right. Vibratory sensation was impaired in the legs, and proprioceptive sensation was somewhat impaired. There was a marked acro-apraxia. There were no parkinsonian features.

COMMENT

The residual symptoms and sequelae of acute disseminated encephalomyelitis have received scant attention in the literature. McAlpine [9] discussed the persistence of a Brown-Séquard syndrome and of symptoms in themselves indistinguishable from those of multiple sclerosis. The relapsing character of some cases was noted by Redlich, who considered it the exception, rather than the rule. Grinker and Bassoe [10] demonstrated that remissive and relapsing features occur clinically, and are explained anatomically by an extension of the old lesions at their periphery but no multiplicity of fresh lesions. The cases cited, and the following cases, in all of which the diagnosis of acute disseminated encephalomyelitis seems extremely probable, demonstrate that a residue of spasticity, ataxia and muscular weakness is very common. Peripheral neuritic sensory impairment and neuralgic pains and the progression of symptoms in the chronic stage suggest that the causative agent of this disease, as that of epidemic encephalitis, is present and active in the nervous system beyond the period of the acute symptoms.

TABLE 4.—*Present Status of Twenty-Eight Patients with Acute Disseminated Encephalomyelitis*

Recovered	10
Convalescing	3
Showing residual features	6
Relapse	5
Dead	3
Unknown	1

One patient with an acute illness in 1927, characterized by shooting pains and paresthesia of the lower extremities, blurred vision and severe bulbar palsy, improved gradually for about two years, but became mildly spastic. During the past four years his condition has not appreciably changed. Examination in July, 1932, showed weakness and spasticity of all extremities, with hyperactive tendon reflexes, except that the left achilles reflex was absent and the right, very sluggish. The abdominal and cremasteric reflexes were preserved. There was atrophy of the small muscles of the feet. Fine fibrillary twitching was observed in the muscles of the shoulder-girdle and of the thigh. There was hypesthesia for pin-prick over the feet and ankles, and a loss of vibratory sensation in the lower extremities. There was a rest tremor of the right hand. The spinal fluid was normal.

A recent examination showed increased muscular atrophy in the lower extremities, with diminished patellar reflexes and loss of cremasteric and lower abdominal reflexes. An attempt to produce Lasègue's sign was painful. The patient complained of cramplike pains in his legs, involuntary contractions of his hamstring muscles and severe, needle-like paresthesias in the soles.

Another patient with the acute phase in 1929 has improved steadily. His residue is atrophy of the muscles of the anterior abdominal wall which compels him to raise himself from the lying to the sitting position by the use of his hands, hyperesthesia over the common peroneal nerve area and a "slapping" of the right foot when walking.

A third patient had an acute phase in February, 1932, characterized by a rapidly developing transverse myelitic syndrome at about the ninth thoracic segment, paralysis of voluntary movements of the right hand, paresthesias in the soles, an aching pain in the right forearm and involvement of the left abducens and facial nerves but of the right hypoglossal nerve. She began to improve in May, and by September was symptom-free except for a slight ataxia, and had resumed housework. Eleven months after the acute onset, she noticed a rapidly progressive loss of vision in the right eye. The left became similarly involved two months later, and this was accompanied by an increased ataxia which made her unable to stand. She had burning sensations in her legs. Examination on March 10, 1933, showed hyperactive, pendulous tendon reflexes and muscular hypotonia, marked impairment of muscle and vibratory sense and astereognosis, all more pronounced on the right side. She had a swelling of the left optic disk with loss of direct and consensual light reflexes and loss of accommodation, together with almost total blindness. The right disk was very pale, and the visual fields were constricted to the macular area. She was given intravenous typhoid vaccine and improved rapidly. The left visual field is now normal and the right slightly reduced in its temporal aspect. Pupillary reactions have returned to normal. Muscle, tendon and joint sense was much improved, and she was able to walk fairly well, but still with an ataxic gait. Muscle strength was improved.

The similarity of the clinical picture in the convalescent or residual stage to that of multiple sclerosis may be striking in some cases. Other cases with spasticity, muscular atrophy and fibrillary twitching may closely simulate amytrophic lateral sclerosis. A third group with posterolateral involvement of the spinal cord and peripheral neuritis resembles combined toxic disease of the spinal cord.

When neuralgic pains or gross sensory defects persist and are accompanied by spasticity and muscle weakness, the diagnosis of acute disseminated encephalomyelitis must be considered, and the history of an acute phase carefully explored. In many cases a retrospective diagnosis can be made. Five patients in this series have already shown relapsing features, but these were slight in some instances. Nevertheless, the evidence is accumulating to show that the occurrence of a relapse does not exclude the diagnosis of encephalomyelitis. As Bassoe [11] wisely commented, both clinical and anatomic studies render the distinction between disseminated encephalitis and multiple sclerosis more obscure and threaten to break down cherished boundary lines. Not only are residual phenomena and relapsing tendencies of encephalomyelitis more common than was indicated by early reports, but their nature is as diversified as that of the acute phase itself.

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ABSTRACT OF DISCUSSION

DR. HOWARD D. MCINTYRE, Cincinnati: In reviewing the papers dealing with encephalitis which Dr. Bassoe had reported in the yearbooks from 1914 to the present time, I found two outstanding facts. Prior to 1917 there were few papers dealing with encephalitis in any phase. From 1917 to 1922 the epidemic of encephalitis occurred and a veritable avalanche of papers appeared. In 1922 a new disease, described under various headings such as disseminated encephalomyelitis and neuromyelitis optica, appeared. Last April I reported in THE JOURNAL twenty cases of an unusual type of encephalitis observed in the vicinity of Cincinnati in 1932 and 1933. I noticed that the majority of

9. McAlpine, D.: Acute Disseminated Encephalomyelitis: Its Sequelae and Its Relationship to Disseminated Sclerosis, Lancet **1**: 846 (April 18) 1931.

10. Grinker, R. R., and Bassoe, P.: Disseminated Encephalomyelitis: Its Relation to Other Infections of the Nervous System, Arch. Neurol. & Psychiat. **25**: 723 (April) 1931.

11. Bassoe, Peter, and Ebaugh, F. G.: The Practical Medicine Series, Year Book 1932, Neurology and Psychiatry, Chicago, Year Book Publishing Company, Inc.

the authors' cases appeared from 1931 to 1933. I am sure that we were dealing with the same disease. The only difference consists in the inclusion in my series of several cases showing an acute hemorrhagic condition with blood in the spinal fluid. I know that I made the mistake of diagnosing some of these cases of hemorrhagic encephalitis as cerebral hemorrhage or spontaneous meningeal hemorrhage. One case suddenly presented weakness in the legs and was diagnosed as an instance of Landry's paralysis. In the course of four days a facial paralysis developed. The acute symptoms cleared up but within a few weeks changes in the spinal cord appeared, with incontinence of urine and feces. The patient eventually made a complete recovery. I note a similar case in the series of Drs. Stout and Karnosh. There were two cases presenting the syndrome of transverse myelitis. The case of herpes labialis interested me greatly. That of course brings to mind the contention of Levaditi as to the cause of epidemic encephalitis. During the acute stage of herpes a patient of mine had fever, pronounced headache and somnolence. When he recovered from the acute illness, the symptoms of marked extrapyramidal disease developed. I have seen two more instances of extrapyramidal disease following immediately an attack of herpes. In the beginning of the epidemic I did not observe extrapyramidal residuals. However, after about eight months I began to observe a few such cases. I saw a patient who, in the acute stage of her encephalitis, had extrapyramidal syndrome with foot drop and pyramidal signs. She recovered almost completely and the parkinsonian syndrome has almost entirely disappeared. The differential diagnosis of this disease is most difficult in the hemorrhagic type. Two mistakes are made: The disease may be called cerebral hemorrhage or meningeal hemorrhage, or a spontaneous hemorrhage may be confused with the disease. In the brains studied an intense congestion with diapedesis of the red and white cells through the pial vessels was observed in one; a frank perivascular inflammatory reaction with the same type of congestion in another. One brain showed a pronounced perivascular degeneration with mild meningeal reaction. The most interesting finding was in a boy who died six months after the acute onset of the disease and whose brain showed glial proliferation with perivascular degeneration, the aftermath of an acute infectious brain disease.

DR. THEODORE T. STONE, Chicago: Acute disseminated encephalomyelitis is an acute inflammatory disease that involves more than one part of the central nervous system. It is characterized clinically by a history of infection, usually of the upper respiratory type, and gives rise to a multiplicity of neurologic signs and symptoms; namely, fever, ocular palsies, pupillary disturbances, signs of meningeal involvement, radicular pains, stupor, hyperkinesis, hypokinesis or actual paralysis, reflex changes, sensory abnormalities, pleocytosis and colloidal gold curve change in the spinal fluid. One obviously concludes that this infection is protean in nature and is therefore capable of producing a clinical picture that is present in acute multiple sclerosis, acute poliencephalomeningomyelitis, neuromyelitis optica, epidemic (lethargic) encephalitis, acute hemorrhagic encephalitis and Schilder's disease. In other words, acute disseminated encephalomyelitis may result in a clinical picture that may be found in any acute disease of the brain and spinal cord whether it be inflammatory, degenerative, toxic or vascular. The mode of onset of this disease is as variegated as its clinical picture. It may be sudden or gradual. The early symptoms may involve any part or all of the central nervous system, such as a peripheral nerve, the spinal cord, the pons, the medulla oblongata, the cerebrum, the cerebellum and the cranial nerves. The histopathologic changes depend much more on the structure of the involved part than on the pathogenic organism. In all acute inflammatory processes of the brain and spinal cord there is a certain amount of meningeal reaction, some perivascular changes such as infiltration or edema, some minute hemorrhages, a moderate degree of primary and secondary degeneration of the ganglion cells and a variable amount of glial reaction. All these changes occur simultaneously. The course of the disease is similarly dependent on the location of the lesions as well as on the intensity and acuteness of the infecting process. One and the same type of infectious virus or organism may produce a mild clinical picture in one case and a severe one in another case. The type or character of the sequelae depends on the part of the brain or spinal cord that remains involved. Accordingly, one may see pyramidal, extrapyramidal, cranial nerve, pontile, bulbar, cerebellar, spinal cord and peripheral nerve symptom complexes or any combination of them. The diagnosis of acute disseminated encephalomyelitis is usually made without difficulty. I believe that trying to label a case as belonging to a certain form of encephalitis is not possible in every instance and is unnecessary because there is no known specific or reliable form of therapy for any of the encephalitides included in this group. Multiple sclerosis, acute multiple sclerosis and poliencephalitis must be ruled out. The treatment at present is entirely symptomatic.

DR. GERALD F. KEMPF, Indianapolis: During the summer of 1931 an acute meningo-encephalopathy appeared in Indianapolis which has been seen since then and which is considered epidemic. There are certain similarities as well as fundamental differences between the cases in Indianapolis and those described by the authors. There were more than 200 cases in Indianapolis. More than 100 of these were acute, and probably as many as 40 were of the fulminating type with death within twenty-four to forty-eight hours after admission to the hospital. The disease is ushered in with an acute infection of the upper respiratory tract like that described by the authors. However, that doesn't necessarily make it the same, because meningococcic meningitis, poliomyelitis and other infectious diseases are frequently ushered in in the same way. Epidemic encephalitis is sometimes preceded by an attack of influenza. In all acute cases the cerebral symptoms entirely overshadow the spinal symptoms. The milder ones frequently resemble endemic meningococcic meningitis without petechial hemorrhages and on spinal puncture yield clear fluids. The sequelae described by Drs. Stout and Karnosh have not been seen. For that reason, I feel that they were perhaps different or that the difference was due to the fact that they were treated differently. The epidemic paralleled and followed an epidemic of meningococcic meningitis. During 1929 and 1930, sporadic cases were seen during the meningococcic epidemic which were treated as meningococcic cases in which a cloudy fluid had not yet developed. For that reason, when, during the summer of 1931, a difference between the two types of patients began to be seen, daily spinal drainage was done. When this was done, the patients were allowed to be up for a few days and, if they exhibited any symptoms, the drainage was resumed. So far, after more than two years, none of the sequelae of epidemic encephalitis and no permanent damage to the nervous system have been seen. As a peculiar sequel, five patients returned a year later with secondary anemia. There has been ample time for an epidemic of this nature to reach Cincinnati and possibly Cleveland. Cases have been seen in eastern Indiana towns. Similar cases have been reported from Kansas City, where epidemic meningitis had occurred. A transient case from Detroit was seen following the epidemic there. Either all of these cases are an acute disseminated encephalomyelitis and daily spinal drainage has been a good therapeutic measure, or the two conditions are entirely different. I wish to ask the authors whether there was any proof that a virus was associated with this disease.

DR. RICHARD E. STOUT, Cleveland: I am glad that Dr. McIntyre brought up the possible relationship of this disease to other encephalitides that have been described throughout the world in recent years. I am glad to hear him state that he considers the syndrome we have seen essentially the same or related to the condition he observed in Cincinnati. In only one case observed did we find bloody or xanthochromic spinal fluid. Because of some differences in the clinical symptomatology, we did not include it in this series. This patient was admitted to the psychiatric service because of a mild depression. Shortly after admission the patient developed severe choreo-athetoid movements and following this passed into delirium and stupor and died within two weeks of the onset. Pathologic changes in the brain were minimal but consisted of extravasation of red blood cells into the Virchow-Robin spaces and into the subarachnoid space, and of very slight perivascular infiltration. We wish to emphasize that the clinical picture of this disease is hard to differentiate, both in the acute and in the chronic stage. We have fortunately been able to follow all our cases except one, some of them for an inadequate period of time, but we have observed a large number of residual manifestations. We feel

that the time has not yet arrived to state that extrapyramidal residual features do not occur; as yet we have not observed them. Our cases are somewhat different from Dr. Kempf's in that spinal manifestations predominated in the clinical picture in at least two thirds of our series. However, there are several modifying factors that may account for this. We have done no bacteriologic studies in these cases to prove that there is a virus. We feel, however, that this disease behaves similarly to other diseases commonly regarded as virus diseases, such as poliomyelitis and epidemic encephalitis.

PRESENT-DAY CANCER PROBLEMS

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The cancer problem today is one of the greatest challenges facing the medical profession. With an insidious and usually painless onset, an increasing death rate, many unknown factors in etiology and the lack of opportunity for seeing many cases in the early and curable stages of the disease, the profession is faced with a monumental task in developing an effective program of prevention and control.

Whether or not cancer is actually increasing is beside the point as far as this discussion is concerned. Statistically one knows that the death rate is increasing steadily, and since 1900 has been stepped up nearly 65 per cent. Cancer is being found in the younger age groups more frequently than formerly, authentic cases of carcinoma having been reported in the new-born and in children under 2 years of age. In 1930 more than 115,000 deaths from this disease were reported from the registration area of the United States, approximately 1 in each 11 or 12 deaths for that year. In many states deaths from cancer are 10 per cent of all deaths, and in some states they account for an even higher percentage.

It is estimated that there are 3 living patients for each death, so that probably not far from 500,000 patients in the United States are alive today with this disease. This may not be such a large number when compared to the figures for other diseases often seen in epidemic form, but when it is realized that the death rate from this disease is 100 per cent unless effective therapy is instituted early, the problem assumes an importance out of all proportion to the numbers involved. Probably 50 per cent of the present deaths from cancer could be prevented if treatment were undertaken in time, and a very large percentage of all malignant lesions of the skin, mouth, breast and cervix could be cured if they were discovered sufficiently early and were subjected to adequate and competent therapy.

From surveys that have been made it has been found that approximately 25 per cent of cases of cancer are hospitalized at some time during their course. What happens to the remaining 75 per cent? Where and how are these patients treated? There is no definite information at this time beyond the probability that many go untreated, many more are seen in physicians' offices, and a certain number fall into the hands of quacks and charlatans. From these surveys it has been found that only about 2 per cent of adults admitted to general hospitals have cancer. As the number of deaths from cancer closely approximates the number of practicing physicians in the average community in the course of a year, there would be but three patients with cancer per physician per year if all such cases were divided equally among members of the profession. This means that physicians in some forms of practice seldom if ever see a case of malignant tumor while others in special surgical fields, in radiology and similar specialties, see many cases.

The only recognized forms of therapy are surgery and irradiation by high voltage roentgen therapy and by radium. These may be employed either singly or in combination. At this time comparatively few hospitals have the facilities or the personnel to use all these therapeutic agents in an adequate and competent manner. Surgery is available, but often high voltage roentgen therapy and radium are lacking. As special skill and training are necessary to the competent use of radiation therapy it does not always follow that a competent personnel is available even though the mechanical equipment has been installed in a hospital or a physician's office.

Present knowledge and experience in the diagnosis and treatment of cancer indicate that it is not a "one man" disease. No one physician is capable of diagnosing and treating all forms of malignant tumors that may be encountered in the course of his practice. More often than not it takes the pathologist, the roentgenologist and the internist, in addition to the surgeon, to arrive at an accurate diagnosis, and on the interpretation of their observations therapy should be based. The care of the patient, with cancer, therefore, becomes a group problem, the surgeon, internist, pathologist and radiologist each contributing of his diagnostic skill and therapeutic ability to the case. Of this group the pathologist has an especial responsibility, as his observations of the type and structure of the tumor determine the therapy to be employed. For this reason the pathologist should have a more prominent place in the hospital staff organization than he now enjoys in many cases. He should see the patient at the bedside and have a voice in the decision on biopsy and where one should be taken if indicated. If a biopsy is to follow an exploratory incision, the pathologist should select the tissue for examination and by frozen section be able to tell the surgeon just what he is dealing with so that the indicated procedures can be effectively carried out. Chemical analysis of secretions and excretions often throw much diagnostic light on the character of a tumor. In other words, the pathologist to be capable in the diagnosis of tumor tissue must, at times, move out of the laboratory into the ward and operating room. He must be able to interpret the physiologic, chemical, physical and clinical observations of each patient in addition to the microscopic picture of the stained specimen. If the pathologist is confined to his laboratory and sees only such tissues as are submitted to him he cannot do justice to his work or to the patient. His interpretations of tissue are all the more valuable when he has the added clinical experience and information that a consultation on these cases would give.

Too often in hospitals in smaller communities there is no laboratory examination of tissues, owing to lack of a pathologist and laboratory equipment, and the entire diagnosis rests on the physician or surgeon who treats the patient. This is unfair to the patient and throws too much responsibility on the attending physi-

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cian as to whether or not he is dealing with malignant tumors. Many neoplasms have undoubtedly been overlooked and many benign tumors have been treated as malignant with the unnecessary sacrifice of tissue because proper examinations of tissues have not been made. This lack of laboratory facilities is being met in certain places, notably in the Province of Alberta, Canada, and in New York, by the enactment of a law, or the promulgation of a rule having the effect of law, that all tissues removed at operation must be subjected to examination in a laboratory approved by the state. In other instances such laboratory services are being offered on a voluntary basis by state laboratories. The best interests of the patient suggest that some such procedure be carried out in all states. If adequate facilities are not available elsewhere it is only reasonable to expect that they will be provided by the state, so that no patient will be subjected to an operation for the removal of suspected malignant tissue without the examination of such tissue by a competent pathologist.

Because of the expense involved, it is not to be expected that all hospitals will equip themselves for adequate cancer diagnosis and therapy. A few such hospitals in each state would serve the needs of the public much better than is now the case in many states. There are now but ten or twelve special cancer hospitals in the United States, and some of them lack facilities to care properly for all types of malignant growths that may be encountered. It is believed that there should be one such well organized hospital in every state, and if there is a medical school in the state this hospital should, if possible, be attached to it in order to provide the best possible facilities for undergraduate education in cancer diagnosis and therapy. The educational advantages of such institutions also should be freely available to the physicians of that community. It has been found too often that the public has been led to want a service for cancer the medical profession and hospitals cannot supply. Until there are adequate facilities in all communities for the diagnosis and treatment of cancer it would seem the wisest policy to concentrate efforts on the development of such facilities rather than to stimulate the public to ask for and expect services that are not available. When a community is properly organized for cancer work the emphasis then may well be laid on the education of the public as to the value of early diagnosis and treatment.

Two fallacious ideas about cancer cling tenaciously to the layman's mind: one, that cancer from the beginning is an incurable disease; the other, that there is a social disgrace connected with the disease. Both are false and until eradicated from the public mind little headway can be expected in combating the condition. The public must be taught to focus its attention on the *beginning* of cancer rather than its *end*. It must come to know the early signs and symptoms of the disease, the lump, the unhealing sore, the unnatural discharge, particularly if blood-stained, the persistent indigestion with loss of weight, and the change in size or color of moles or warts. One or more of these signs should indicate to the mind of the patient, as well as of the physician, the possibility of malignancy, and further inquiry should be pursued until the answer is obtained.

The physician first seeing a patient with cancer determines largely the outcome of the case. If the physician recognizes malignancy, or the possibility of malignancy, and proceeds to find the answer, the life of the patient will undoubtedly be saved or greatly prolonged beyond what would be the case if the physician temporizes and indulges in some watchful waiting to see if the condition will not diagnose itself by means of metastases or other obvious signs. There are two periods in the experience of the patient with cancer that largely determine the outcome of each case: one, the time elapsing after the patient knows or thinks something is wrong and a physician is consulted; the other, the time wasted by the physician in waiting for more definite signs or symptoms that will make the diagnosis easier. The period of waiting by the patient can be excused in many cases because of ignorance or fear on his part; that of the physician, never. Unless he is in a position to get the answer to the patient's question he should not delay in placing the patient in the hands of those who can give the answer. Every case of cancer is an emergency, not for precipitate and unknowing surgical measures, but for immediate examination to determine if the condition is cancer and if this is found to be so, for expeditious and competent therapy.

Physicians should remember that cancer is practically the only disease in the field of medicine in which the skill of the physician alone can effect a cure. If untreated, cancer always kills, but if one eradicates all cancer tissue from the body or kills it in the body, a cure is possible. With few exceptions this cannot be said of any other disease.

A complete service to the patient with cancer has not been discharged when the first treatment has been given. More than in any other disease it is necessary to maintain close contact with such patients after treatment. Their hospital records should remain in the open file, and periodic notations of the state of the patient's health should be made thereon. The obtaining of such information might well be a joint responsibility of the attending physician and of the hospital. These patients should be followed for at least five years and preferably for life.

Such a follow-up service requires the full cooperation of the patient. This may be difficult to obtain unless he is fully aware of the value of such service. If he is not told his true condition but is put off with some fairy tale about swollen glands or similar stories, he will often not appreciate the seriousness of his condition and will neglect to cooperate with the physician in careful post-treatment observations. For this reason the plan of advising the patient with cancer fully of his condition is being extended more and more, and where it is being so used only favorable results are noted. Good cooperation is obtained, and vague fears are put at rest. A few neurotic persons may worry unduly about their condition, but if in place of cancer they had falling hair or falling arches they would worry just as much. They can be ignored when compared with the large number of patients who have an intelligent interest in their condition and who will cooperate fully with the physician in the handling of their cases.

Too few physicians realize the extent of public education in health and medical matters. It is no longer possible to draw a veil of mystery and secrecy over the activities of all things medical because the public is being bombarded daily with information and misinformation along health and medical lines. The time has come for members of the profession to be frankly honest with their patients, especially the more intelligent patients, on all matters pertaining to their health and welfare.

This situation is already giving rise to some undesirable precedents in the field of control of cancer. Ten states now make cancer a reportable disease. Massachusetts has adopted a full cancer program under the control of the state department of health with a large hospital for all types of treatment and clinics held at periodic intervals throughout the state. The law creating this service states that this work shall be done with or without the cooperation of the local physicians. When the public is sufficiently aroused to move for action on a question of this kind it goes directly to the legislature for assistance. This is a situation that often leads to misunderstandings and friction of many kinds. The medical profession should keep this fact in mind, and build its cancer control program so as to make unnecessary any such lay interference.

The cancer problem is in the hands of the profession where it properly belongs, but it will not remain there indefinitely unless efforts are made to improve the facilities for diagnosis and treatment. It is to be hoped that the tendencies toward state control of this problem will be of slow development and that the profession will assume an increasing responsibility in the control of this disease.

Clinical Notes, Suggestions and New Instruments

COCCYGEAL HERNIA

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The rarity of coccygeal hernia is comprehensible when the density of the anatomic structures involved is considered. The supporting mechanisms of the pelvic and anal diaphragms and associated ligaments practically preclude the occurrence of hernia in the anococcygeal area. In main, the structures to be considered are the gluteus maximus muscles and their investing sheath of fascia lata, which lies beneath the skin, and the two layers of the superficial fascia. In this region the gluteus maximus arises from the lateral portion of the lower sacral and coccygeal vertebrae and the posterior aspect of the sacrotuberous ligament. These attachments blend with the superficial and deep layers of the supraspinous ligament, the superficial sacrococcygeal ligaments and the deep posterior longitudinal ligament of the spine. These structures provide an exceptionally strong fibrous support to the pericoccygeal region. Between the tip of the coccyx and the anus lies the fibrous raphe of the iliococcygei and beneath this the aponeurosis of the pubococcygeus. On the deep surface of the levator ani, the endopelvic fascia and the uterococcygeal or prostaticococcygeal ligaments blend with the anterior sacrococcygeus muscles and ligaments. In order for a hernia to appear in this area, some loss of substance, following either operation or severe trauma, must precede the development of the rupture.

In reviewing the literature, we have been able to find only one reported case of coccygeal hernia.[1] Dr. Pagenstecher's patient was a white woman, aged 50, who received a fracture of the coccyx during parturition twenty-seven years prior to surgical removal of the coccyx for relief of pain. Seven months later she returned, complaining of pain, inability to sit in comfort, the development of a mass, and the sense of sitting on her bowels. The patient was treated by excision of a sac the size of an orange and approximation of adjacent muscle and fibrous tissue with chromic catgut. The final result was good.

REPORT OF CASE

C. B., a white man, aged 38, a clerk, admitted to Grace Hospital, Aug. 10, 1931, complained of pain in the lower end of the spine following an accident about six weeks before. The pain had been constant and of a dull, aching character, most noticeable when the patient was sitting, when there was apparently a sense of protrusion, at times associated with sudden increase of pain. He also had a sensation of something moving beneath the skin. The stools were apparently normal, though defecation was somewhat painful. There were no urinary symptoms.

The patient had had the usual childhood diseases; his general health had been good until the past three or four years, during which time he had attacks of neuralgia and repeated attacks of subacute tonsillitis. In 1924 the patient had a traumatic injury to the end of the spine, with resultant fracture of the coccyx. During the same year he underwent an operation for surgical removal of the coccyx. According to the history, the postoperative convalescence was uneventful, with a small amount of drainage for a few days only, and healing was apparently by primary union. He had no trouble in this region until the onset of the present illness.

The patient had an occasional headache. There was no enlargement or rigidity of the neck, but he had repeated attacks of swelling of the cervical glands, sometimes accompanied by tenderness. A progressive deafness of the right ear had developed since the onset of the recurrent attacks of tonsillitis. There was an occasional cough without expectoration, dyspnea, palpitation or cyanosis. At times he experienced a choking sensation in the throat and upper part of the mediastinum. The appetite was good; food agreed with the patient, and there was no nausea or vomiting. His weight was constant. The stools were normal except for some discomfort on defecation. The spine and extremities were normal except for transient attacks of neuralgia in the upper extremities.

The patient was well developed and well nourished, apparently not acutely ill. The skin was soft and moist; there was no rash or eruption. The pupils were round and equal and reacted to light and in accommodation. A slight degree of dental caries was present. The tonsils were moderately enlarged, cryptic and chronically inflamed, with redness of both anterior pillars, and slight adenopathy of the posterior cervical chain on both sides. The heart was not enlarged, with a rate of 86, regular rhythm and no murmurs; the blood pressure was 126 systolic, 84 diastolic. There was slight tenderness in both lower lumbar regions which had been present since the fall six weeks before, but it was rather mild in character. At the end of the spine there was a healthy postoperative scar over the region of the coccyx with no mass visible. On straining, however, an impulse could be felt, and on pressure definite crepitation could be elicited in this area. It was difficult to have the patient exert enough pressure to determine the extent of the protrusion, since straining produced pain. A preoperative diagnosis of postoperative coccygeal hernia was made and the patient was prepared for operation.

The urine was normal. Examination of the blood showed: hemoglobin, 71 per cent; white blood cells, 11,100; neutrophils, 94 per cent. The temperature was 99 F.

August 11, the patient was taken to the operating room and 125 Gm. of procaine hydrochloride administered intraspinally in the last lumbar interspace. He was then placed in a right Sims position, and the buttocks and perineum were prepared with iodine and alcohol, and draped. A slightly curved incision, excising the old postoperative scar, was made. As soon as the skin was freed, a mass about 2 by 1½ by 1½ inches (5 by 3.75 by 3.75 cm.) protruded from the coccygeal area. This could be reduced easily and proved to be a hernia of the rectum through the coccygeal aperture, with the neck of the sac as great as the largest circumference of the mass. With an assistant's finger in the rectum, the finger could be felt within the protruding sac. No peritoneal sac could be found, the hernia apparently developing below the mesentery attachment of the rectosigmoid junction. The mass was then invaginated by three purse-string sutures of number 2 tan catgut. The dehiscent portion of the levator ani was approximated with interrupted sutures of tan catgut, and the portion of the sacrotubero ligaments and the gluteus maximums muscles were freed up and sutured in their position with interrupted sutures of tan catgut. The skin and superficial fascia were then approximated with silkworm gut sutures.

The postoperative diagnosis was postoperative coccygeal hernia.

The patient was placed on a nonresidue diet, so that there was no stool for eight days following the operation. The

1. Pagenstecher, G. A.: Coccygeal Hernia, J. A. M. A. **95**: 1588 (Nov. 22) 1930.

wound united by primary union, and the patient was discharged from the hospital in good condition on the fifteenth day after operation. He was seen about three months later, when he returned to the hospital for a tonsillectomy. At this time, a thorough investigation of the rectal and coccygeal areas was made, and there had been no recurrence of the hernia. The stools were normal. Aside from transient, low grade, dull aching pain, the patient was apparently in excellent condition.

2618 Grove Avenue—407 West Grace Street.

Committee on Foods

REPORTS OF THE COMMITTEE

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

BLAIR'S CERTIFIED NORTHERN TYPE FLOUR (BLEACHED)

Manufacturer.—Blair Milling Company, Atchison, Kan.

Description.—A hard winter wheat "long patent" flour; bleached.

Manufacture.—Selected hard winter wheat is cleaned, washed, scoured, tempered and milled by essentially the same procedure as described in THE JOURNAL, June 18, 1932, page 2210. Chosen flour streams are blended and bleached with nitrogen trichloride (one-ninth ounce per 196 pounds) and with a mixture of benzoyl peroxide and calcium phosphate (1 pound per 50 barrels of flour).

Claims of Manufacturer.—For bread baking.

THOMSON AND TAYLOR ROOT BEER CONCENTRATE

Manufacturer.—Thomson and Taylor Company, Chicago.

Description.—A root beer concentrate or beverage flavor containing the water extract of ginger, hops, coriander and anise, oils of sassafras, wintergreen, cassia, cloves and anise, vanillin, gum arabic and caramel coloring.

Manufacture.—The ingredients are mixed with water and automatically filled into bottles.

Analysis (submitted by manufacturer).—

	per cent
Moisture	66.3
Total solids	33.7
Ash	0.3
Nitrogen	0.1
Volatile oils	0.6
Reducing sugars as dextrose	6.2
Sucrose (copper reduction method)	1.1
Nonsugar solids (by difference)	26.4
Coloring matter—caramel	

Claims of Manufacturer.—Root beer concentrate complying with the respective United States Department of Agriculture definition. For preparing either yeast fermented or artificially carbonated root beer.

SMACO HYPO-ALLERGIC WHOLE MILK POWDER

Manufacturer.—S. M. A. Corporation, Cleveland.

Description.—Spray-dried whole milk made less allergic by prolonged processing.

Manufacture.—The milk used is collected in accordance with the provisions of the sanitary code of the Cleveland Board of Health. On receipt at the dairy the milk is examined, pasteurized by the holding method, cooled, standardized to 3.5 per cent milk fat content, homogenized, sealed in specially constructed cans, autoclaved at 115 C. for a prolonged period, cooled, removed from the cans, spray dried and automatically sealed in tins in an atmosphere of nitrogen.

Analysis (submitted by manufacturer).—

	per cent
Moisture	2.
Total solids	98.
Ash	6.
Fat	27.
Protein (N × 6.38)	26.
Lactose (by difference)	39.

Calories.—5 per gram; 142 per ounce.

Claims of Manufacturer.—Specially prepared for individuals subject to allergic reactions from usual milk or dried milk preparations. For use in regular infant feeding formulas and in the baking and cooking of special dishes for milk-sensitive patients.

HIGHLAND SLICED WHITE BREAD

Manufacturer.—Langendorf United Bakeries, Inc., San Francisco and Seattle.

Description.—A white bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932, p. 817); prepared from patent flour, water, sucrose, shortening, dextrinized starch, salt, powdered skim milk, yeast, malt extract syrup, and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate.

CLAPP'S ORIGINAL APPLE SAUCE (ADDED SUGAR)

Manufacturer.—Harold H. Clapp, Inc., Rochester, N. Y.

Description.—Strained, cooked apple sauce with added sugar. The method of preparation is efficient for retention in high degree of the natural vitamins and minerals.

Manufacture.—Purchased canned apples are strained in a steam atmosphere, admixed with a definite proportion of sugar, canned and processed as described for Clapp's Original Baby Soup (THE JOURNAL, June 24, 1933, p. 2011).

Analysis (submitted by manufacturer).—

	per cent
Moisture	85.8
Total solids	14.2
Ash	0.4
Fat (ether extract)	0.7
Protein (N × 6.25)	0.1
Crude fiber	2.1
Carbohydrates other than crude fiber (by difference)	10.9

Calories.—0.5 per gram; 14 per ounce.

Vitamins and Claims of Manufacturer.—See Clapp's Original Baby Soup (THE JOURNAL, June 24, 1933, p. 2011).

LARSEN'S PEAS (STRAINED-UNSEASONED)

Manufacturer.—The Larsen Company, Green Bay, Wis.

Description.—Sieved green peas prepared by efficient methods for retention in high degree of the natural vitamin and mineral values of the raw green peas. No added sugar or salt.

Manufacture.—Freshly harvested peas are removed from the pods, washed, sorted by hand to remove any foreign material, again washed, blanched in hot water until soft, puréed as described for tomatoes (THE JOURNAL, July 1, 1933, p. 35), admixed with a small amount of water to produce a desired consistency, heated in a closed vessel at 82 C. and automatically filled into washed cans, which are sealed and processed for sixty minutes at 116 C.

Analysis (submitted by manufacturer).—

	per cent
Moisture	86.0
Total solids	14.0
Ash	0.4
Salt (NaCl)	0.0
Fat (ether extract)	0.4
Protein (N × 6.25)	4.4
Crude fiber	0.4
Carbohydrates other than crude fiber (by difference)	8.4

Calories.—0.5 per gram; 14 per ounce.

Vitamins and Claims of Manufacturer.—See Larsen's Strained Tomatoes Unseasoned—Ready for Use (THE JOURNAL, July 1, 1933, p. 35).

PABLUM
(PRE-COOKED)

Manufacturer.—Mead Johnson and Company, Evansville, Ind.

Description.—Mixture of wheat, oat and yellow corn meals, wheat embryo, bone meal, alfalfa leaf, dried brewers' yeast and sodium chloride; contains substantial amounts of vitamins A, B, E and G and the mineral elements calcium, phosphorus, iron and copper.

Manufacture.—The ingredients in definite proportions are mixed with water, steam cooked under pressure for twenty minutes, dried to 7 per cent moisture content, flaked and automatically packed in cartons

Analysis (submitted by manufacturer).—

	per cent
Moisture	7.0
Ash	3.7
Fat (ether extraction method)	3.0
Protein (N × 6.25)	15.0
Crude fiber	0.7
Carbohydrates other than crude fiber (by difference)	70.6
Chlorine (Cl)	0.98
Calcium (Ca)	0.78
Sodium (Na)	0.66
Phosphorus (P)	0.62
Potassium (K)	0.40
Magnesium (Mg)	0.13
Sulphur (S)	0.02
Silicon (Si)	0.02
Iron (Fe)	0.024
Copper (Cu)	0.0013

Calories.—3.7 per gram; 105 per ounce.

Vitamins.—Vitamin A, 1 U. S. P. unit per gram; vitamins B and G (B complex), 12 Chick and Roscoe units per ounce (2.5 Gm. is necessary to produce in albino rats for seven weeks an average gain of 10 Gm. weekly).

Claims of Manufacturer.—Already cooked; requires only admixture with water or milk of any desired temperature for table use. Cream, salt and sugar may be added according to individual taste. Richer than common cereals in mineral constituents, especially calcium, phosphorus, iron and copper; has an alkaline-forming ash.

Recommended as a general cereal for infants, children and adults; as a thick cereal or gruel in special diets, and for muffins, puddings and desserts.

GERBER'S STRAINED SPINACH

Manufacturer.—Gerber Products Company, Fremont, Mich.

Description.—Strained cooked spinach retaining in high degree the natural vitamin and mineral values; the coarser fibrous material is removed. No added seasoning or sugar.

Manufacture.—Spinach grown from selected seed under company supervision is harvested at the proper state of maturity, promptly cleaned, hand trimmed, inspected, cooked until soft in a glass lined retort, canned and processed as described for Strained Vegetable Soup (THE JOURNAL, July 22, 1933, p. 282).

Analysis (submitted by manufacturer).—

	per cent
Moisture	93.4
Total solids	6.6
Ash	1.3
Fat (ether extract)	0.4
Protein (N × 6.25)	1.8
Reducing sugars before inversion (as invert)	0.3
Sucrose (copper reduction method)	0.2
Starch (acid hydrolysis method)	0.4
Crude fiber	0.5
Carbohydrates other than crude fiber (by difference)	2.6

Calories.—0.2 per gram; 6 per ounce.

Vitamins, Minerals and Claims of Manufacturer.—See Strained Vegetable Soup (THE JOURNAL, July 22, 1933, p. 282).

CAREY'S SALT (FREE RUNNING)

Manufacturer.—The Carey Salt Company, Hutchinson, Kan.

Description.—Table salt containing 0.7 per cent added magnesium carbonate.

Manufacture.—The salt is obtained by evaporation of salt brine prepared from rock salt deposits in the earth. Water is pumped down to the salt deposits; the resultant brine is pumped to the surface, treated with lime and sodium carbonate, and stored in tanks to permit insoluble matter to settle out. The brine is filtered and concentrated in "vacuum" evaporators; the salt crystals drop to the bottom and are removed, centrifugated to remove excess moisture, dried in rotary driers, and screened to grade the crystals according to size. Salt of a definite granulation is admixed with magnesium carbonate (0.7 per cent) and automatically packed in cartons.

Analysis (submitted by manufacturer).—

	per cent
Moisture	0.01
Calcium carbonate	0.02
Calcium sulphate	0.82
Calcium chloride	0.03
Magnesium chloride	0.02
Magnesium carbonate	0.65
Sodium chloride (NaCl) by difference	98.4
Iron and aluminum oxides	0.01

Claims of Manufacturer.—Carey's Salt is for all table and cooking uses of salt. The added magnesium carbonate tends to preserve its "free running" qualities. Does not cake or harden in the package.

CELLU HARD GUM DROPS (WITHOUT FOOD VALUE. ASSORTED FLAVORS. GUMS, CITRIC ACID, FLAVORING, SACCHARIN AND CERTIFIED COLORING)

Manufacturer.—Chicago Dietetic Supply House, Chicago.

Description.—Gum drops containing gum arabic, water, citric acid, flavoring (true fruit raspberry flavor, oils of cassia, anise, lime, peppermint, lemon or orange, or extract of hoarhound), saccharin (0.4 Gm. per 4 ounces) and certified color. The hoarhound drops contain menthol also.

Manufacture.—The gum arabic is dissolved in the water; the solution is permitted to stand from twelve to fifteen hours, skimmed and strained through a fine sieve. The remaining ingredients are added to the clear solution, which is dropped on molds of fine "Cellu" flour (cellulose) and allowed to cool and harden. The hardened drops are removed from the molds, freed from cellulose and packed in pound or quarter pound packages.

Analysis (submitted by manufacturer).—

	per cent
Moisture	10.7
Ash	3.1
Fat (ether extract)	0.1
Protein (N × 6.25)	1.6
Crude fiber	0.0
Saccharin	0.09
Titratable acidity as citric acid	1.5
Alcohol insoluble matter (gums, dextrin, etc.)	88.
Pentosans (as pentose)	28.3

Claims of Manufacturer.—Especially prepared for carbohydrate restricted diets. Do not contain sugar, starch or fat. Sweetened with saccharin.

BLACK BIRD BRAND AMBER TABLE SYRUP
(CORN SYRUP FLAVORED WITH REFINERS' SYRUP)

Packer.—Wheeler-Barnes Company, Minneapolis.

Distributor.—H. P. Lau Company, Lincoln and Fremont, Neb.

Description.—Table syrup; corn syrup base (85 per cent) with refiners' syrup (15 per cent), the same as Golden Oak Brand Amber Syrup (THE JOURNAL, Dec. 3, 1932, p. 1948).

BANQUET EXTRA FANCY INDIA AND CEYLON TEA

Manufacturer.—McCormick and Company, Inc., Baltimore.

Description.—Blend of equal parts of India and Ceylon Orange Pekoe and Pekoe teas.

Manufacture.—The manufacture is essentially the same as described for Banquet Tea—Extra Fancy Orange Pekoe (THE JOURNAL, May 21, 1932, p. 1809).

Analysis (submitted by manufacturer).—

	per cent
Moisture	7.5
Soluble solids	38.1
Total ash	5.4
Water soluble ash	3.6
Acid insoluble ash	0.1
Alkalinity of water soluble ash: 35.2 cc. N alkali solution per 100 grams tea	
Petroleum ether extract	0.6
Volatile ether extract	0.2
Crude fiber	10.8
Tannin	16.3
Caffeine	3.6

MEDICAL EDUCATION IN THE UNITED STATES AND CANADA

ANNUAL PRESENTATION OF EDUCATIONAL DATA FOR 1932-1933 BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

The statistics herewith presented for the year ended June 30, 1933, are based on reports received directly from all the approved, or class A, medical schools in the United States and Canada, from the hospitals approved for intern training and those approved for residencies in the specialties by the Council on Medical Education and Hospitals. Similar data have been published annually in THE JOURNAL for thirty-two years.[1] This report is presented in three sections: I. Premedical Education. II. Medical Education. III. Education of Interns and Residents in Approved Hospitals. Also included are a list of hospitals approved for intern training, a list of those approved for residencies in the specialties and a list of institutions offering approved graduate courses. Acknowledgment is here given for the prompt response and the kind cooperation of the officers of the schools and hospitals who have made the presentation of these statistics possible.

PART I. PREMEDICAL EDUCATION

A year ago it was announced that the Council had discontinued the publication of its list of Approved Colleges of Arts and Sciences and Junior Colleges because the same information was being published by the Office of Education in the Department of the Interior at Washington. Bulletin 19 was issued in 1930, and supplements 1 and 2 followed in 1931 and 1932. Because the supply of these documents was inadequate, the Council will again undertake the preparation of its own list, which will be available in the spring of 1934.

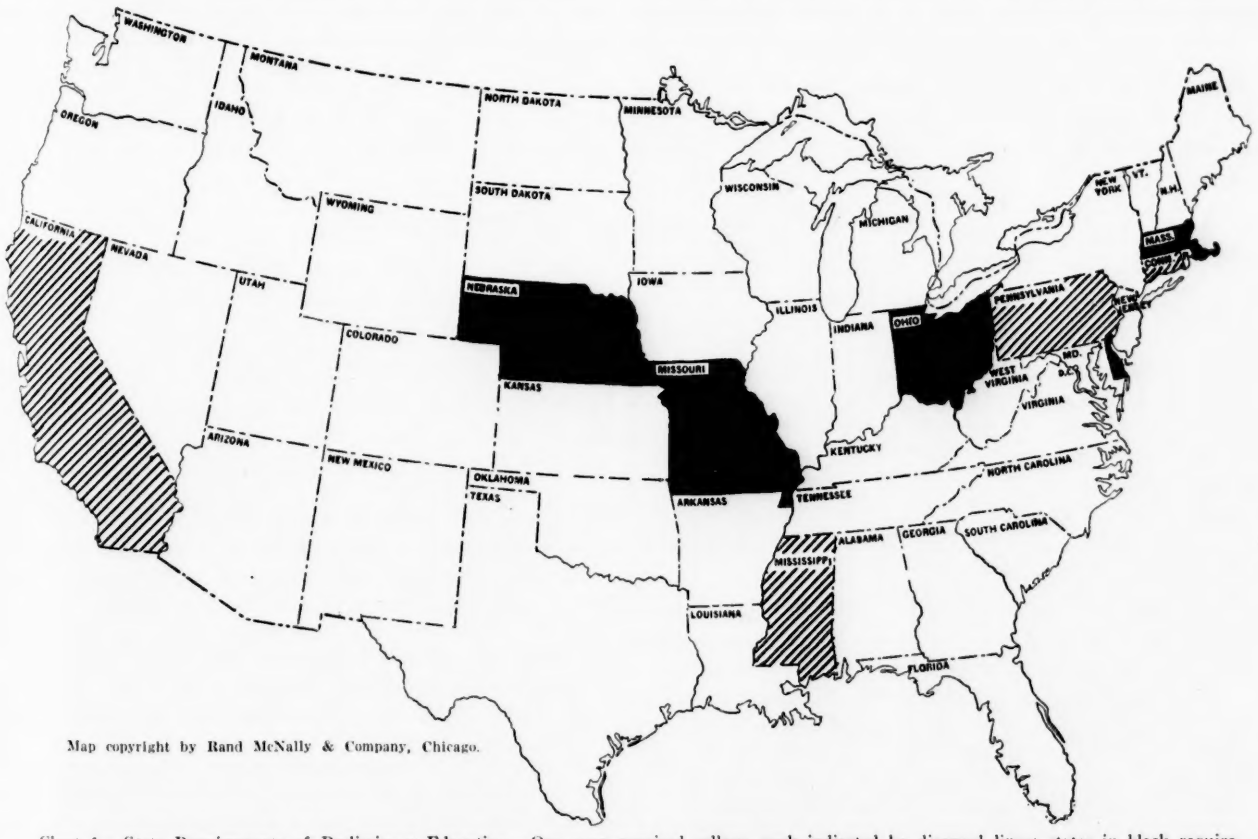

Chart 1.—State Requirements of Preliminary Education. One year required college work indicated by diagonal lines; states in black require high school education and all other states have two-year college requirement.

Prospective medical students do well to secure their premedical training in colleges that are included in the approved list of the following agencies: Association of American Universities, Middle States Association of Colleges and Secondary Schools, New England Association of Colleges and Secondary Schools, North Central Association of Colleges and Secondary Schools, Northwest Association of Secondary and Higher Schools, and Southern Association of Colleges and Secondary Schools. Otherwise they may find it difficult or impossible to enter the medical school of their choice; for, while there is no inviolable rule excluding candidates from unaccredited colleges, the medical schools, in selecting from a large number of applicants, naturally and properly give the preference to those whose preparation has been received in institutions which are known to conform to accepted standards or

1. J. A. M. A. **37**: 744 (Sept. 21) 1901.

exact of students from other institutions, qualitatively and quantitatively, a higher performance.

TABLE 1.—*State Requirements of Preliminary Education*

Two Years of College	Effective Date	Two Years of College	Effective Date
Alabama	1919	New Hampshire	1919
Arizona	1922	New Jersey	1921
Arkansas	1922	New Mexico	1922
Colorado	1914	New York	1922
District of Columbia	1929	North Carolina	1922
Florida	1922	North Dakota	1912
Georgia	1922	Oklahoma	1921
Idaho	1938	Oregon	1924
Illinois	1923	Rhode Island	1922
Indiana	1915	South Carolina	1922
Iowa	1915	South Dakota	1915
Kansas	1922	Tennessee	1922
Kentucky	1922	Texas	1930
Louisiana	1922	Utah	1926
Maine	1920	Vermont	1922
Maryland	1922	Virginia	1922
Michigan	1922	Washington	1922
Minnesota	1912	West Virginia	1925
Montana	1922	Wisconsin	1919
Nevada	1922	Wyoming	1922

One Year of College	Effective Date
California	1924
Connecticut	1919
Mississippi	1919
Pennsylvania	1918

High School Graduation or its Equivalent

Delaware
Massachusetts
Missouri
Nebraska
Ohio

MINIMUM STANDARD

The following statement, taken from the By-Laws [2] of the Association of American Medical Colleges, has been adopted by the Council and was approved by the House of Delegates of the American Medical Association in June, 1933:

Sec. 4. Requirements for Admission. Admission to medical schools and medical colleges in membership in the Association may be by:

(1) Satisfactory completion of a minimum of collegiate instruction as provided below in Subsection I; or by

(2) Examination as provided in Subsection II.

Subsection I.[3] The minimum of collegiate credit required for entrance to medical schools and colleges in membership in the Association shall be not less than two full academic years, which shall include English, theoretical and practical courses in physics and biology, and in general and organic chemistry, completed in institutions approved by the accrediting agencies acceptable to the Executive Council of the Association. Exception may be made under this section in that any member may admit applicants who have fulfilled the requirement in American and Canadian institutions not approved by such accrediting agencies, provided that all admissions so made be reported to the Executive Council and shall be published in the next Annual Report of the Council.

All collegiate instruction given in satisfaction of this requirement must be based on the same entrance requirements and must be of the same quality and standard of instruction as that required for a baccalaureate degree in the institution in which the candidate receives his preparation.

Subsection II. Admission to medical schools and medical colleges in the Association may be by examination.

Examinations for the purpose of admission by this method shall be conducted by institutions acceptable to the Executive Council of the Association, under the following conditions:

(*a*) Candidates who have completed two years of collegiate instruction and present evidence of general scholarship of high order, but who lack credits in not more than two of the required subjects, may be admitted on passing examinations in these subjects.

(*b*) Candidates who have completed three years of collegiate instruction and present evidence of having accomplished work of distinction in one or more fields of learning, but who lack credit in any or all of the required subjects, may be admitted on passing examinations in these subjects.

LEGAL REQUIREMENTS

Although, for fifteen years, two years of premedical college training has been required by every class A medical school, there are still nine states which have failed to adopt this standard. Statutory requirements are shown in table 1 with the dates at which they became effective. In chart 1, the same information is presented graphically.

PART II. MEDICAL EDUCATION

DEVELOPMENTS IN MEDICAL EDUCATION

During the past year, medical schools, along with other institutions of higher learning, have struggled to exist. Almost without exception, income has been reduced and budgets have suffered accordingly. Salaries have been cut and faculty appointments terminated, entailing, in some instances, unparalleled hardship because, under existing circumstances, no other appointments were available. A few states have instituted a searching inquiry into the reasons for maintaining professional education at public expense. While standards may have been somewhat impaired, there is reason to believe that there has also been some gain in the direction of a clearer understanding of the mutual responsibilities of the public and those in charge of the training of future physicians.

The year has been marked by the appearance of two significant volumes dealing with medical problems, the Report of the Committee on the Costs of Medical Care and the Final Report of the Commission on Medical Education. Both of these reports raise questions as to the adequacy of current methods in medical education, and Dr. Willard C. Rappleye, director of study, in the commission's report, warns of the dangers that must result if the production of doctors is not drastically curtailed. The Council, at its June meeting, adopted a resolution asking the Association of American Medical College to use its influence to reduce the number of medical graduates.

EVENTS OF THE YEAR

The University of Southern California School of Medicine has completed the organization of its five year curriculum. By action of the Council on June 12, 1933, it was rated as an approved, or class A, school. Degrees were conferred this year on a group of seven students who had taken the work of the third and fourth years at the College of Medical Evangelists.

A little more than a year ago, the state of Georgia reorganized its educational system, combining under a single board of regents more than a score of previously independent institutions. The new board ordered a survey of the field by a group of distinguished educational leaders. The cost and the value of the medical school at Augusta were critically appraised. In April the regents voted to discontinue the school on July 1 of this year, but a month later this action was reversed.

The University of Chicago, as the result of a comparative study of the attainments of students having three and four years of preprofessional training, has lowered its admission requirement to three years of premedical work.

At the same time Albany Medical College and the University of Cincinnati College of Medicine have raised their entrance standards from two to three years and Jefferson Medical College has raised its requirements from three to four years.

2. Constitution and By-Laws of the Association of American Medical Colleges, amended, Nov. 15, 1932.

3. As many schools have admission requirements differing from those given in this section, it is important that intending students of medicine, at an early date, inform themselves as to the exact requirements of that school in which they expect to matriculate.

In the fall of 1931, Louisiana State University opened a medical school in New Orleans on the grounds of the Charity Hospital, which is also a state institution. Students were admitted to the first and third year classes. During the past year all four classes have been in operation. In February of this year the school was approved by the Council.

The University of Mississippi School of Medicine was compelled to make drastic reductions in its budget for the year 1932-1933, so that the medical school not only was unable to make the improvements that had been recommended but was operating under greater handicaps than before. At its February meeting the Council, unwilling to extend further the doubtful status in which it had remained for more than two years, determined that the University of Mississippi School of Medicine should be omitted from the approved list.

The University of Missouri School of Medicine has definitely abandoned the attempt to establish a four year course. It will continue to be, as heretofore, a two year school.

CURRICULUM

According to the revised Essentials of an Acceptable Medical School, the standard curriculum is that provided in the By-Laws of the Association of American Medical Colleges. This requirement would seem to be flexible enough to satisfy any school and is as follows:

Sec. 5. Curriculum. The entire course of four years shall consist of from 3,600 to 4,400 hours, distributed as from 900 to 1,100 hours per year, and shall be grouped as set forth in the following schedule, each group to be allotted approximately the percentage of hours of the whole number of hours in the courses as stated.

	Hours	Per Cent
1. Anatomy, including embryology and histology	14	18.5
2. Physiology	4.5	6
3. Biochemistry	3.5	4.5
4. Pathology, bacteriology and immunology	10	13
5. Pharmacology	4	5
6. Hygiene and sanitation	3	4
7. General medicine	20	26.5
Neurology and psychiatry		
Pediatrics		
Dermatology and syphilis		
8. General surgery	13	17.5
Orthopedic surgery		
Urology		
Ophthalmology		
Otolaryngology		
Roentgenology		
9. Obstetrics and gynecology	4	5
Total	76	100
Electives	24	0

When the teaching conditions demand it, a subject may be transferred from one division to another.

STATISTICS OF COLLEGES

Table 2, pages 680 and 681, lists the approved medical schools that were in session during 1932-1933 and contains figures regarding the total enrolment, the number of students and graduates (men and women), graduates with baccalaureate degrees, teachers, tuition fees by classes, name of executive officer and the dates when the college session of 1933-1934 will begin and end. Changes in the classification which have taken place since the publication of the educational statistics in 1932 [4] can be noted in the footnotes at the bottom of the table. Also contained in the footnotes are references to the schools that give only the first two years of the medical course, that require a hospital internship or laboratory work for graduation, that charge an additional tuition fee for nonresidents, and those which will admit students at varying times during the year. The population of the city in which the medical school is located is also listed. For those institutions which have a divided medical course, the population of the city wherein the major part of the course is given appears in the table and that of the city offering the remainder of the course appears in a footnote. The data here presented constitute the basis also for several of the subsequent tabulations. Beginning on page 691 will be found a historical sketch of these schools.

4. J. A. M. A. **99**: 731 (Aug. 27) 1932.

MEDICAL COLLEGES, STUDENTS AND GRADUATES BY STATES

The number of colleges, students and graduates for each state are given in table 3. New York, with nine schools, the largest number, naturally had the largest number of students and graduates, 2,684 and 605, respectively. Pennsylvania, with six schools, was second with 2,425 students and 587 graduates. Illinois, with five schools, had 2,233 students and 499 graduates, and California, with four, had 968 students and 176 graduates. The District of Columbia and Massachusetts, each with three schools, had more students and graduates than California, and Ohio and Tennessee, with three schools, had fewer students but more graduates. Included among the number of students are the figures for ten institutions which offer only the preclinical courses.

TABLE 3.—*Colleges, Students, and Graduates by States*

State	Colleges	Students	Graduates
Alabama	1	107	...
Arkansas	1	197	45
California	4	968	176
Colorado	1	220	47
Connecticut	1	197	38
District of Columbia	3	1,087	238
Georgia	2	377	90
Illinois	5	2,233	499
Indiana	1	459	102
Iowa	1	373	93
Kansas	1	288	61
Kentucky	1	348	85
Louisiana	2	645	104
Maryland	2	695	157
Massachusetts	3	1,223	299
Michigan	2	809	197
Minnesota	1	470	125
Mississippi	1	45	...
Missouri	3	955	208
Nebraska	2	653	146
New Hampshire	1	38	...
New York	9	2,684	605
North Carolina	3	291	15
North Dakota	1	58	...
Ohio	3	947	214
Oklahoma	1	255	56
Oregon	1	235	51
Pennsylvania	6	2,425	587
South Carolina	1	150	35
South Dakota	1	45	...
Tennessee	3	767	183
Texas	2	682	145
Utah	1	65	...
Vermont	1	150	38
Virginia	2	593	146
West Virginia	1	140	...
Wisconsin	2	792	110
Totals	77	22,466	4,895

MEDICAL STUDENTS SHOWN BY CLASSES

In table 4, page 682, the students enrolled in each school are shown by classes. The total attendance for the first year was 6,426, or 166 more than the number enrolled for the session 1931-1932. The total attendance for the remainder of the medical course was, respectively, 5,479, 5,017 and 4,948. The two medical schools of the University of Chicago are not operated under the promotion by class system but on an individual plan. There were 596 students thus enrolled, making an increase of more than 100 on the average in each of the foregoing figures as well as for the preceding year. The figures are slightly higher than those for the previous college session.

(Continued on page 682)

TABLE 2.—*Statistics of Approved, or Class A, Medical Colleges in the United States and Canada. Session 1932-1933*

Marginal Number	NAME AND LOCATION OF COLLEGE	Population of City where College is Located	Number of Students Registered 1932-1933		Graduates Since July 1, 1932		Graduates with B.A., B.S., Ph.B.	Number of Teachers	Total Fees (Dollars)				Executive Officer	Session of 1933-1934		Marginal Number
			Men	Women	Men	Women			1st Year	2d Year	3d Year	4th Year		Begins 1933	Ends 1934	
	ALABAMA															
1	University of Alabama School of Medicine, University (Tuscaloosa)*	20,659	105	2	...	..	..	23	221	241	...	...	Stuart Graves, M.D., Dean	Sept. 6	May 22	1
	ARKANSAS															
2	University of Arkansas School of Medicine, Little Rock [2]	81,679	191	6	44	1	27	96	165	160	155	155	Frank Vinsonhaler, M.D., Dean	Sept. 20	June 5	2
	CALIFORNIA															
3	University of California Medical School, Berkeley-San Francisco [1,2]	634,394†	197	34	51	3	50	379	290	225	225	225	Langley Porter, M.D., Dean	Aug. 21[6]	May 19	3
4	College of Medical Evangelists, Loma Linda-Los Angeles [1]	1,238,048†	350	39	63	5	32	251	385	375	480	440	E. H. Risley, M.D., Dean, Loma Linda A. E. Coyne, M.D., Dean, Los Angeles	July 2	June 17	4
5	University of Southern California School of Medicine, Los Angeles [1,4]	1,238,048	146	11	7	..	6	185	450	452	435	435	Paul S. McKibben, Ph.D., Dean	Sept. 20	June 14	5
6	Stanford University School of Medicine, San Francisco [1]	634,394	177	14	47	..	47	232	387	369	360	360	Loren Roscoe Chandler, M.D., Dean	Oct. 4[6]	June 13	6
	COLORADO															
7	University of Colorado School of Medicine, Denver [2]	287,861	206	14	45	2	22	187	211	231	181	191	Maurice H. Rees, M.D., Dean	Sept. 25[6]	June 11	7
	CONNECTICUT															
8	Yale University School of Medicine, New Haven	162,655	182	15	37	1	36	275	505	500	500	520	Milton C. Winternitz, M.D., Dean	Sept. 25	June 13	8
	DISTRICT OF COLUMBIA															
9	Georgetown University School of Medicine, Washington	486,869	391	..	132	..	109	211	460	455	420	375	William Gerry Morgan, M.D., Dean	Sept. 21	June 11	9
10	George Washington University School of Medicine, Washington	486,869	272	20	60	4	34	165	491	491	491	476	Earl B. McKinley, M.D., Dean	Sept. 20	June 2	10
11	Howard University College of Medicine, Washington	486,869	198	6	42	..	30	93	269	269	259	266	Numa P. G. Adams, M.D., Dean	Oct. 2	June 8	11
	GEORGIA															
12	Emory University School of Medicine, Atlanta	360,691	219	..	52	..	40	187	300	300	300	300	Russell H. Oppenheimer, M.D., Dean	Sept. 27	June 11	12
13	University of Georgia School of Medicine, Augusta [2]	60,342	155	3	38	..	12	67	105	100	100	100	William Lorenzo Moss, M.D., Dean	Sept. 25	June 4	13
	ILLINOIS															
14	Loyola University School of Medicine, Chicago [1]	3,376,438	429	21	109	5	89	293	336	409	332	298	Louis D. Moorhead, M.D., Dean	Oct. 2[6]	June 16	14
15	Northwestern University Medical School, Chicago [1]	3,376,438	535	15	121	3	83	410	365	365	365	365	Irving S. Cutter, M.D., Dean	Oct. 3	June 14	15
16	University of Chicago, Rush Medical College [1]	3,376,438	309	23	120	5	125	270	...	...	380	400	Ernest E. Irons, M.D., Dean	Oct. 2[6]	June 12	16
17	University of Chicago, The School of Medicine of the Division of the Biological Sciences [1]	3,376,438	238	26	16	2	18	230	375	375	375	375	B. C. H. Harvey, M.D., Dean of Medical Students	Oct. 2	June 13	17
18	University of Illinois College of Medicine, Chicago [1,2]	3,376,438	611	26	115	3	105	293	200	200	200	215	David John Davis, M.D., Dean	Oct. 2	June 8	18
	INDIANA															
19	Indiana University School of Medicine, Bloomington-Indianapolis [2]	364,161†	439	20	96	6	..	270	187	186	182	177	Burton D. Myers, M.D., Dean, Bloomington Willis Dew Gatch, M.D., Dean, Indianapolis	Sept. 12	June 11	19
	IOWA															
20	State University of Iowa College of Medicine, Iowa City [2]	15,340	300	13	88	5	45	109	192	192	192	207	John Thomas McClintock, M.D., Chairman, Executive Committee	Sept. 25	June 4	20
	KANSAS															
21	University of Kansas School of Medicine, Lawrence-Kansas City [2]	121,857†	276	12	60	1	37	176	162	154	155	159	H. R. Wahl, M.D., Dean, Kansas City	Sept. 21[6]	June 11	21
	KENTUCKY															
22	University of Louisville School of Medicine, Louisville	307,745	339	9	83	2	57	143	365	365	370	380	John Walker Moore, M.D., Dean	Sept. 14	June 2	22
	LOUISIANA															
23	Louisiana State University Medical Center, New Orleans [1,2,4]	458,762	165	6	..	..	..	149	92	92	92	92	Arthur Vidrine, M.D., Dean	Sept. 20	June 4	23
24	Tulane University of Louisiana School of Medicine, New Orleans	458,762	459	15	98	6	41	157	350	340	325	335	Charles Cassedy Bass, M.D., Dean	Sept. 22	June 8	24
	MARYLAND															
25	Johns Hopkins University School of Medicine, Baltimore	804,874	257	32	67	5	72	366	611	610	610	610	Alan M. Chesney, M.D., Dean	Oct. 3	June 12	25
26	University of Maryland School of Medicine and College of Physicans and Surgeons, Baltimore [2]	804,874	401	5	84	1	47	231	385	375	375	390	J. M. H. Rowland, M.D., Dean	Sept. 22	June 6	26
	MASSACHUSETTS															
27	Boston University School of Medicine, Boston	781,188	222	20	47	6	45	176	421	421	396	406	Alexander S. Begg, M.D., Dean	Sept. 21	June 11	27
28	Harvard University Medical School, Boston	781,188	519	..	129	..	125	480	405	400	400	400	David L. Edsall, M.D., Dean	Sept. 25	June 21	28
29	Tufts College Medical School, Boston	781,188	444	18	113	4	50	292	412	407	407	417	A. Warren Stearns, M.D., Dean	Sept. 27	June 18	29
	MICHIGAN															
30	University of Michigan Medical School, Ann Arbor [2]	26,944	442	43	116	16	103	219	200	205	205	202	Arthur C. Curtis, M.D., Secretary	Sept. 25	June 8	30
31	Detroit College of Medicine and Surgery, Detroit [1,2]	1,568,662	316	8	64	1	56	134	275	275	275	275	W. H. MacCraken, M.D., Dean	Sept. 28	June 22	31
	MINNESOTA															
32	University of Minnesota Medical School, Minneapolis [1,2]	464,356	446	24	114	11	125	303	243	243	243	243	Elias P. Lyon, M.D., Dean	Oct. 2[6]	June 15	32
33	MISSISSIPPI [5]		44	1												33
	MISSOURI															
34	University of Missouri School of Medicine, Columbia* [2]	14,967	83	3	...	..	..	27	170	150	...	...	Dudley S. Conley, M.D., Dean	Sept. 11	June 6	34
35	St. Louis University School of Medicine, St. Louis	821,960	532	..	115	..	85	304	395	390	390	425	Alphonse M. Schwitalla, S.J., Ph.D., Dean	Sept. 20	June 1	35
36	Washington University School of Medicine, St. Louis	821,960	324	13	92	1	73	297	424	419	419	424	W. McKim Marriott, M.D., Dean	Sept. 28	June 12	36
	NEBRASKA															
37	Creighton University School of Medicine, Omaha	214,006	307	8	70	2	66	138	393	393	348	346	John J. McInerny, S.J., Acting Dean	Sept. 21	June 7	37
38	University of Nebraska College of Medicine, Omaha	214,006	329	9	72	2	32	122	217	212	212	212	C. W. M. Poynter, M.D., Dean	Sept. 18	June 4	38
	NEW HAMPSHIRE															
39	Dartmouth Medical School, Hanover*	3,043	38	..	...	..	..	25	410	400	...	...	John P. Bowler, M.D., Dean	Sept. 21	June 19	39

NEW YORK															
40 Albany Medical College, Albany	127,412	118	3	29	1	23	126	455	420	405	405	Thomas Ordway, M.D., Dean	Sept. 25	June 11	40
41 Long Island College of Medicine, Brooklyn	2,560,401	414	10	98	1	60	277	545	560	530	560	Adam M. Miller, A.M., Dean	Oct. 2	June 5	41
42 University of Buffalo School of Medicine, Buffalo	573,076	268	14	62	2	..	229	527	522	517	527	Edward W. Koch, M.D., Dean	Oct. 2	June 13	42
43 Columbia University College of Physicians and Surgeons, New York	4,211,699	378	35	81	9	86	693	540	525	525	545	Willard C. Rappleye, M.D., Dean	Sept. 27	June 5	43
44 Cornell University Medical College, Ithaca-New York	4,211,699†	224	29	48	7	55	385	510	500	510	525	G. Canby Robinson, M.D., Director, New York	Sept. 25	June 7	44
45 New York Homeopathic Medical College and Flower Hosp., New York	4,211,699	209	9	65	3	..	169	540	530	530	560	Claude A. Burrett, M.D., Dean	Sept. 18	June 5	45
46 New York University, University and Bellevue Hospital Medical College, New York	4,211,699	482	29	113	9	118	374	545	536	517	558	John Wyckoff, M.D., Dean	Sept. 13	June 13	46
47 University of Rochester School of Medicine, Rochester	328,132	166	8	35	2	34	190	400	400	400	400	George Hoyt Whipple, M.D., Dean	Sept. 18	June 16	47
48 Syracuse University College of Medicine, Syracuse	209,326	194	4	39	1	19	191	500	500	500	510	H. G. Weiskotten, M.D., Dean	Sept. 28	June 4	48
NORTH CAROLINA															
49 University of North Carolina School of Medicine, Chapel Hill * [2]	2,699	62	5	..	..	..	12	250	250	...	...	I. H. Manning, M.D., Dean	Sept. 22	June 7	49
50 Duke University School of Medicine, Durham [1]	52,037	157	8	15	..	6	69	450	450	450	450	Wilburt C. Davison, M.D., Dean	Oct. 2[6]	Sept. 1	50
51 Wake Forest College School of Medicine, Wake Forest *	1,536	59	..	..	..	..	14	220	225	...	...	Thurman D. Kitchin, M.D., Dean	Sept. 12	May 31	51
NORTH DAKOTA															
52 University of North Dakota School of Medicine, Grand Forks * [2]	17,112	58	..	..	..	..	13	75	75	...	...	H. E. French, M.D., Dean	Sept. 19	June 12	52
OHIO															
53 University of Cincinnati College of Medicine, Cincinnati [1,2]	451,160	302	11	63	4	59	275	360	370	360	360	Arthur C. Baehmeyer, M.D., Dean	Sept. 25	June 16	53
54 Western Reserve University School of Medicine, Cleveland	900,429	254	15	55	6	61	238	442	435	415	425	Torald Sollmann, M.D., Dean	Sept. 14	June 13	54
55 Ohio State University College of Medicine, Columbus [2]	290,564	349	16	82	4	71	129	196	186	186	196	J. H. J. Upham, M.D., Dean	Oct. 3	June 13	55
OKLAHOMA															
56 University of Oklahoma School of Medicine, Oklahoma City [2]	185,389	239	16	52	4	48	138	128	95	33	25	Lewis Jefferson Moorman, M.D., Dean	Sept. 18	June 4	56
OREGON															
57 University of Oregon Medical School, Portland [2]	301,815	218	17	48	3	51	186	260	255	250	250	Richard B. Dillehunt, M.D., Dean	Oct. 3	June 11	57
PENNSYLVANIA															
58 Hahnemann Medical College and Hospital of Philadelphia	1,950,961	469	..	108	..	52	201	405	402	402	375	William A. Pearson, M.D., Dean	Oct. 2	June 7	58
59 Jefferson Medical College of Philadelphia	1,950,961	572	..	140	..	108	237	445	430	425	425	Ross V. Patterson, M.D., Dean	Sept. 20	June 1	59
60 Temple University School of Medicine, Philadelphia	1,950,961	449	15	110	2	66	232	485	455	435	455	William N. Parkinson, M.D., Dean	Sept. 27	June 14	60
61 University of Pennsylvania School of Medicine, Philadelphia	1,950,961	506	16	132	6	129	382	530	510	510	510	William Pepper, M.D., Dean	Sept. 25	June 20	61
62 Woman's Medical College of Pennsylvania, Philadelphia	1,950,961	...	136	...	27	20	94	388	407	432	454	Martha Tracy, M.D., Dean	Sept. 20	June 6	62
63 University of Pittsburgh School of Medicine, Pittsburgh	669,817	254	8	60	2	48	234	415	400	400	410	R. R. Huggins, M.D., Dean	Sept. 25	June 6	63
SOUTH CAROLINA															
64 Medical College of the State of South Carolina, Charleston	62,265	148	2	34	1	21	80	275	280	285	285	Robert Wilson, M.D., Dean	Sept. 28	June 7	64
SOUTH DAKOTA															
65 University of South Dakota School of Medicine, Vermilion * [2]	2,850	44	1	...	..	..	10	100	100	...	...	J. C. Ohlmacher, M.D., Administrative Head	Sept. 20	June 11	65
TENNESSEE															
66 University of Tennessee College of Medicine, Memphis [2]	253,143	401	4	105	..	45	202	360	340	325	355	O. W. Hyman, Ph.D., Dean	Sept. 28[5]	June 9	66
67 Meharry Medical College, Nashville	153,866	166	5	34	2	34	59	270	250	250	270	John J. Mullowney, M.D., President	Oct. 2	May 31	67
68 Vanderbilt University School of Medicine, Nashville	153,866	177	14	40	2	42	203	315	315	315	320	Waller S. Leathers, M.D., Dean	Sept. 26	June 13	68
TEXAS															
69 Baylor University College of Medicine, Dallas	260,475	338	10	72	3	18	131	312	297	282	287	Walter H. Moursund, M.D., Dean	Oct. 2	May 28	69
70 University of Texas School of Medicine, Galveston	52,938	317	17	69	1	45	57	80	82	74	84	George E. Bethel, M.D., Dean	Oct. 2	May 31	70
UTAH															
71 University of Utah School of Medicine, Salt Lake City *	140,267	63	2	..	..	..	25	190	200	...	...	L. L. Daines, M.D., Dean	Sept. 25	June 2	71
VERMONT															
72 University of Vermont College of Medicine, Burlington [2]	24,789	141	9	34	4	21	68	300	300	300	300	J. N. Jenne, M.D., Dean	Sept. 15	June 18	72
VIRGINIA															
73 University of Virginia Department of Medicine, Charlottesville [2]	15,245	241	6	58	1	24	69	377	355	330	325	J. Carroll Flippin, M.D., Dean	Sept. 14	June 12	73
74 Medical College of Virginia, Richmond [2]	182,929	335	11	85	2	43	143	307	307	292	322	Lee E. Sutton, Jr., M.D., Dean	Sept. 12	May 29	74
WEST VIRGINIA															
75 West Virginia University School of Medicine, Morgantown * [2]	16,186	132	8	..	..	..	25	115	115	...	...	John N. Simpson, M.D., Dean	Sept. 14	June 12	75
WISCONSIN															
76 University of Wisconsin Medical School, Madison [2]	57,899	291	22	49	1	50	131	150	130	103	43	Charles R. Bardeen, M.D., Dean	Sept. 20	June 18	76
77 Marquette University School of Medicine, Milwaukee [1]	578,249	272	7	59	1	52	169	389	379	379	364	Eben J. Carey, M.D., Dean	Oct. 2	June 13	77
CANADA [3]															
78 University of Alberta Faculty of Medicine, Edmonton, Alta	79,197	152	12	14	1	5	89	175	225	225	225	Allan C. Rankin, M.D., Dean	Sept. 25	May 15	78
79 University of Manitoba Faculty of Medicine, Winnipeg, Man. [1]	217,587	226	20	36	6	7	127	276	266	276	276	A. T. Mathers, M.D., Dean	Sept. 21	May 25	79
80 Dalhousie University Faculty of Medicine, Halifax, N.S. [1]	59,275	131	4	29	..	15	68	312	312	317	302	H. G. Grant, M.D., Dean	Sept. 12	May 15	80
81 Queen's University Faculty of Medicine, Kingston, Ont	25,439	301	..	46	..	5	56	175	185	185	210	Frederick Etherington, M.D., Dean	Sept. 25	May 23	81
82 University of Western Ontario Medical School, London, Ont	71,148	123	9	33	4	10	75	200	200	208	233	A. B. Macallum, M.D., Dean	Sept. 21	June 6	82
83 University of Toronto Faculty of Medicine, Toronto, Ont	631,201	751	67	117	10	28	305	170	220	285	220	J. G. FitzGerald, M.D., Dean	Sept. 26	May 19	83
84 McGill University Faculty of Medicine, Montreal, Que	818,578	464	11	79	4	55	205	393	393	393	393	Charles F. Martin, M.D., Dean	Sept. 20	May 1	84
85 University of Montreal Faculty of Medicine, Montreal, Que. [1]	818,578	193	1	49	..	41	108	240	220	262	232	Louis de Lotbiniere Harwood, M.D., Dean	Sept. 15	June 15	85
86 Laval University Faculty of Medicine, Quebec, Que	130,588	253	..	47	..	46	88	160	170	160	160	Arthur Rousseau, M.D., Dean	Sept. 11	May 31	86
87 University of Saskatchewan School of Med. Sciences, Saskatoon, Sask. *	43,291	50	2	..	..	..	12	120	120	...	...	W. S. Lindsay, M.B., Dean	Sept. 22	May 11	87

* Gives only the first two years of the medical course.

† The population of the following cities is: Berkeley, 82,109; Loma Linda, 2,500; Bloomington, 18,227; Lawrence, 13,726; Ithaca, 20,708.

1. Hospital internship required for graduation. See table 5 for the fifth year registration.

2. The following universities make an additional charge for nonresidents: Arkansas, $150; California, $300; Colorado, $132; Georgia, $200; Illinois, $100; Indiana, $75 first year, $175 next three years; Iowa, $264; Kansas, $50; Louisiana State, $300; Maryland, $150; Michigan, $100; Detroit, nonresidents of Detroit, $100, nonresidents of Michigan, $125; Minnesota, $25 per quarter; Missouri, $50; North Carolina, $100; North Dakota, $90; Cincinnati, nonresidents of Cincinnati, $50; Ohio State, $150; Oklahoma, $200; Oregon, $60; South Dakota, $50; Tennessee, for residents of the state the charge is reduced $50 each quarter; Vermont, $75 (an activity fee of $30 is charged all students not holding academic degrees); Virginia, $50; Medical College of Virginia, $100; West Virginia, $250; Wisconsin, $200.

3. See Description of Medical Colleges, page 691, for fifth and sixth year fees.

4. Approved as Class A medical schools, June 12, 1933, and Feb. 12, 1933, respectively

5. At a meeting of the Council on Medical Education and Hospitals, Feb. 12, 1933, the University of Mississippi School of Medicine was removed from its list of Class A medical schools with the proviso that other institutions may accord full credit for the work done at Mississippi by students who were at that time regularly enrolled.

6. Students admitted at different times of the year: Kansas, February 7; Minnesota, January 8; Tennessee, January 2 and March 22. Students admitted to advanced standing: California, January; Stanford, January 2 and April 2; Colorado, January 2 and March 26; Loyola, if vacancies exist, students will be admitted in January; Rush, April 2; Duke, junior students will be admitted in June.

(Continued from page 679)

The Association of American Medical Colleges reports that there were 31,429 applications for admission to the freshman class in 1932, representing 12,280 applicants, and of these 7,357 were accepted and 4,923 senior year, but all graduates are required to spend at least two years in hospital or laboratory work after graduation. These schools and the number of students interning during 1932-1933 are contained in table 5. There were 1,224 such individuals, 47 more than in

TABLE 4.—*Students by Classes*

Name of College	Enrolled During 1932-1933 1st	2d	3d	4th	Total
University of Alabama School of Medicine	61	46	..	..	107
University of Arkansas School of Medicine	57	42	53	45	197
University of California Medical School	60	54	59	58	231
College of Medical Evangelists	104	106	88	91	389
University of Southern California School of Medicine	54	37	36	30	157
Stanford University School of Medicine	51	52	48	40	191
University of Colorado School of Medicine	73	50	50	47	220
Yale University School of Medicine	54	63	40	40	197
Georgetown University School of Medicine	160	150	145	136	591
George Washington University School of Medicine	80	76	73	63	292
Howard University College of Medicine	54	60	48	42	204
Emory University School of Medicine	61	47	59	52	219
University of Georgia School of Medicine	40	39	41	38	158
Loyola University School of Medicine	148	103	102	97	450
Northwestern University Medical School	126	120	159	145	550
University of Chicago, Rush Medical College*	...	...	...	...	332
University of Chicago, The School of Medicine of the Division of the Biological Sciences*	...	...	...	...	264
University of Illinois College of Medicine	192	145	147	153	637
Indiana University School of Medicine	131	105	116	107	459
State University of Iowa College of Medicine	127	81	72	93	373
University of Kansas School of Medicine	82	83	67	56	288
University of Louisville School of Medicine	95	69	98	86	348
Louisiana State University Medical Center	66	50	27	28	171
Tulane University of Louisiana School of Medicine	134	109	125	106	474
Johns Hopkins University School of Medicine	71	72	73	73	289
University of Maryland School of Medicine and College of Physicians and Surgeons	121	95	105	85	406
Boston University School of Medicine	70	65	54	53	242
Harvard University Medical School	125	127	134	133	519
Tufts College Medical School	124	114	101	123	462
University of Michigan Medical School	129	120	100	136	485
Detroit College of Medicine and Surgery	100	83	69	72	324
University of Minnesota Medical School	83	130	117	140	470
University of Mississippi School of Medicine	22	23	..	..	45
University of Missouri School of Medicine	45	41	..	..	86
St. Louis University School of Medicine	173	119	121	119	532
Washington University School of Medicine	82	73	88	94	337
Creighton University School of Medicine	102	73	68	72	315
University of Nebraska College of Medicine	100	79	87	72	338
Dartmouth Medical School	22	16	..	..	38
Albany Medical College	37	34	20	30	121
Long Island College of Medicine	114	97	112	101	424
University of Buffalo School of Medicine	82	70	64	66	282
Columbia University College of Physicians and Surgeons	115	108	99	91	413
Cornell University Medical College	71	67	58	57	253
New York Homeopathic Medical College and Flower Hospital	96	67	76	69	308
New York University, University and Bellevue Hospital Medical College	147	127	116	121	511
University of Rochester School of Medicine	42	48	47	37	174
Syracuse University College of Medicine	52	51	55	40	198
University of North Carolina School of Medicine	33	34	..	..	67
Duke University School of Medicine	50	60	40	15	165
Wake Forest College School of Medicine	30	20	..	..	50
University of North Dakota School of Medicine	29	29	..	..	58
University of Cincinnati College of Medicine	90	77	72	74	313
Western Reserve University School of Medicine	79	74	55	61	269
Ohio State University College of Medicine	102	85	88	90	365
University of Oklahoma School of Medicine	78	60	61	56	255
University of Oregon Medical School	66	55	61	53	235
Hahnemann Medical College and Hospital of Philadelphia	142	114	98	115	469
Jefferson Medical College of Philadelphia	150	138	144	140	572
Temple University School of Medicine	116	117	118	113	464
University of Pennsylvania School of Medicine	135	115	132	140	522
Woman's Medical College of Pennsylvania	44	40	22	30	136
University of Pittsburgh School of Medicine	67	66	67	62	262
Medical College of the State of South Carolina	40	37	37	36	150
University of South Dakota School of Medicine	30	15	..	..	45
University of Tennessee College of Medicine	151	82	64	108	405
Meharry Medical College	56	41	36	38	171
Vanderbilt University School of Medicine	50	47	51	43	191
Baylor University College of Medicine	117	89	67	75	348
University of Texas School of Medicine	108	85	70	71	334
University of Utah School of Medicine	35	30	..	..	65
University of Vermont College of Medicine	44	34	34	38	150
University of Virginia Department of Medicine	72	58	58	59	247
Medical College of Virginia	83	71	101	91	346
West Virginia University School of Medicine	81	59	..	..	140
University of Wisconsin Medical School	121	87	56	49	313
Marquette University School of Medicine	92	65	68	54	279
Totals for 1933	6,426	5,479	5,017	4,948	22,466
Totals for 1932	6,260	5,462	4,932	4,885	22,135

* School operated on the quarter system, and students are not promoted by classes.

refused.[5] However, as already indicated, only 6,426 actually completed the freshman year, exclusive of the University of Chicago enrolment.

STUDENT INTERNS

Sixteen medical schools require a year's internship in an approved hospital or laboratory work as a prerequisite for graduation. Duke University School of Medicine grants the degree after the completion of the

TABLE 5.—*Students Serving Internships During the Session 1932-1933 as a Prerequisite for Graduation*

University of California Medical School	54
College of Medical Evangelists	70
University of Southern California School of Medicine	7
Stanford University School of Medicine	49
Loyola University School of Medicine	114
Northwestern University Medical School	146
University of Chicago, Rush Medical College	125
University of Chicago, The School of Medicine of the Division of the Biological Sciences	18
University of Illinois College of Medicine	147
Detroit College of Medicine and Surgery	65
University of Minnesota Medical School	166
Duke University School of Medicine	18*
University of Cincinnati College of Medicine	67
Marquette University School of Medicine	60
University of Manitoba Faculty of Medicine	40
Dalhousie University Faculty of Medicine	29
University of Montreal Faculty of Medicine	49
Total	1,224

* Degrees are awarded prior to internship.

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the previous session. The University of Oklahoma School of Medicine, which made the internship a requirement to affect the seniors of 1932-1933, has rescinded its action. Further information is given in Part III, Education of Interns and Residents in Approved Hospitals.

TABLE 6.—*Colleges, Students and Graduates*

Year	No. Colleges	Students*	Graduates
1905	160	26,147	5,606
1910	131	21,526	4,440
1915	96	14,891	3,536
1920	85	13,798	3,047
1921	83	14,466	3,186
1922	81	15,635	2,520
1923	80	16,960	3,120
1924	79	17,728	3,562
1925	80	18,200	3,974
1926	79	18,840	3,962
1927	80	19,662	4,035
1928	80	20,545	4,262
1929	76	20,878	4,446
1930	76	21,597	4,565
1931	76	21,982	4,735
1932	76	22,135	4,936
1933	77	22,466	4,895

* Includes figures for schools offering preclinical courses also.

MEDICAL COLLEGES, STUDENTS AND GRADUATES

The total number of undergraduate medical students, as shown in table 6, was 22,466, an increase of 331 over last session. This is the largest number of stu-

dents enrolled since 1905, when 26,147 were in attendance at the 160 medical schools then existing. Also included in these are the number of students enrolled in schools offering only the preclinical courses. Not included in the total number of students for 1933 are 38 part-time, 812 postgraduate and 258 special students.

The number of medical colleges in each five year period from 1905 to 1920, and for each year since, as well as the number of students and graduates, is also shown in this table. The largest number of medical colleges existed in 1906, when there were 162.

Again, referring to table 6, it will be noted that the total number of graduates was 4,895, a decrease of 41 from the preceding year. The gradual increase in the number of graduates since 1923 is shown graphically in chart 2. While the number of graduates in 1932 was slightly lower than for the preceding session, they represent over 50 per cent more than the loss by death in the medical profession each year. The number of deaths of physicians of the United States for the calendar year 1932 was approximately 3,200. The ratio of physicians to population is steadily increasing. A complete presentation of the facts bearing on the numerical sufficiency of the medical profession is given in the Final Report of the Commission on Medical Education, page 93.

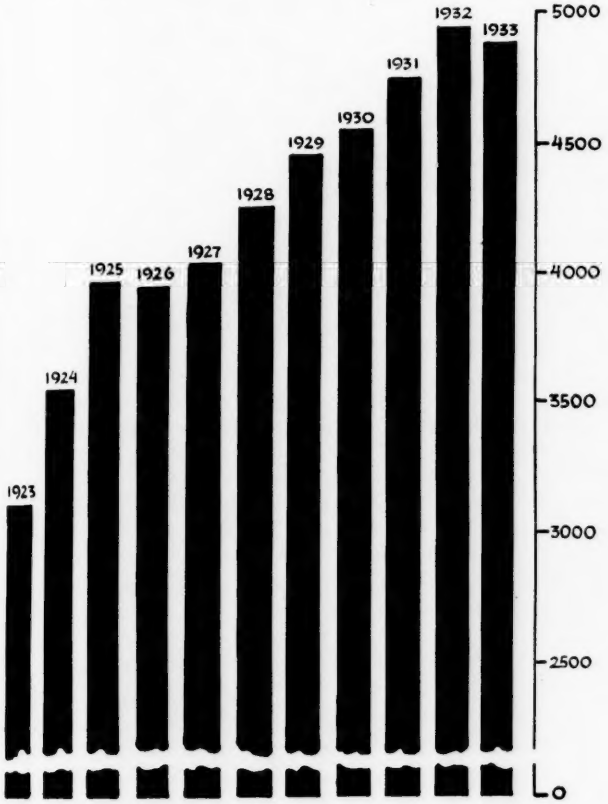

Chart 2.—Increase of medical graduates in the United States.

TUITION AND OTHER FEES

In table 2, pages 680-681, is given the amount charged by the various medical colleges per annum for tuition, matriculation, laboratory and graduation fees. In table 7, the eighty-seven medical colleges of the United States and Canada have been grouped according to the amount of fees charged. Four colleges have fees of less than $100 a year. These were the State Universities of Louisiana, North Dakota, Oklahoma and Texas. The first three schools named charge an additional fee of $300, $90 and $200, respectively, for nonresidents, while the University of Texas will admit only residents. The ten colleges having fees over $500 are Yale, Johns Hopkins, Long Island, Buffalo, Columbia, Cornell, New York Homeopathic, University and Bellevue, Syracuse and the University of Pennsylvania. The lowest charge was that of the University of Oklahoma, with an average fee of $72, and the highest $611, by Johns Hopkins. The University of Oklahoma, as noted, has a nonresident fee of $200. There were twenty-seven universities which made an additional charge for nonresidents ranging from $50 by the Universities of Kansas, Missouri, Cincinnati, South Dakota and Virginia to $300 exacted by the Universities of California and Louisiana State. The fees for nonresidents are shown in the footnote to table 2, pages 680-681.

In 1910, several medical schools were still paying all expenses—and a few making profits—from students' fees. At present, however, no medical school can maintain extensive laboratories, pay the essential salaries to teachers and properly teach modern medicine without an income larger than that derived from students' fees. As the cost of conducting medical schools has increased, there has also been an increase in the fees charged. Provision, however, has been made for scholarships and loan funds for the benefit of deserving students. It is practically impossible for a student to endeavor to be self supporting while studying medicine. There were 721 scholarships reported by forty-two schools and loan funds by fifty-two.

TABLE 7.—*College Fees, 1932-1933*

	Colleges
Under $100	4
$100 to $200	14
200 to 300	23
300 to 400	20
400 to 500	16
Over $500	10
Totals	87

In addition to student fees, many of the schools received donations from various sources throughout the session, such as gifts, bequests and endowments, as well as their usual appropriations from state and private enterprises.

REPETITION IN COURSES

Statistics regarding colleges in which students are repeating either an entire year or certain courses for scholastic reasons has appeared in the Educational Number of THE JOURNAL each year since 1931. The study has been continued, and the results collected are herewith presented in table 8, recorded by percentages. Although it might be assumed that those schools which have an average of 5 per cent or less are maintaining reasonable academic standards, it has been found that in some schools the methods of promotion are lax and a student is promoted who would be conditioned in another school maintaining a higher standard. Furthermore, in five schools, as shown in table 9, students are never required to repeat the year, for scholastic reasons. At Yale and Minnesota, where promotions are based on comprehensive examination, a student who fails to pass this examination cannot proceed with his studies until he passes, but he is not required to repeat work. It has been found generally

that a student who thus fails reviews his work during the following months and then presents himself for reexamination and if successful proceeds with his course. This is particularly true at Minnesota, which is operated on the quarter system or continuous session plan. A student need only drop out of school for a quarter to review his work. At the University of Tennessee, which also operates on the quarter plan, students are not required to repeat the work of an entire year but only of a quarter's work unless he fails repeatedly. The medical schools of the University of Chicago require students to repeat in residence only the subjects in which they were conditioned.

TABLE 8.—*Percentages of Classes Repeating Courses in Session 1932-1933 for Scholarship*

Name of College	1st Year	2d Year	3d Year	4th Year	Total
University of Alabama School of Medicine	1.6	4.3	...	...	2.8
University of Arkansas School of Medicine	12.3	2.4	...	...	4.1
University of California Medical School	...	1.9	1.7	...	0.9
College of Medical Evangelists	1.9	...	...	1.1	0.8
Stanford University School of Medicine	...	...	4.2	...	1.0
University of Colorado School of Medicine	8.2	4.0	...	...	3.6
Howard University College of Medicine	1.9	3.3	2.1	...	2.0
University of Georgia School of Medicine	...	2.6	...	...	0.6
Loyola University School of Medicine	4.1	3.9	...	...	2.2
Northwestern University Medical School	0.8	0.8	...	...	0.4
University of Illinois College of Medicine	1.6	1.4	...	...	0.8
State University of Iowa College of Medicine	8.7	3.7	...	...	3.8
University of Kansas School of Medicine	...	6.0	...	...	1.7
University of Louisville School of Medicine	8.4	4.3	2.0	...	3.7
Louisiana State University Medical Center	10.6	2.0	7.5	...	5.8
Tulane University of Louisiana School of Medicine	4.5	0.9	...	...	1.5
University of Maryland School of Medicine and College of Physicians and Surgeons	4.1	1.1	1.9	...	2.0
Boston University School of Medicine	1.4	...	...	...	0.4
Harvard University Medical School	...	0.8	1.5	...	0.6
Tufts College Medical School	1.6	...	...	...	0.4
University of Michigan Medical School	4.7	5.0	...	...	2.5
Detroit College of Medicine and Surgery	9.0	...	...	...	2.8
University of Missouri School of Medicine	...	2.4	...	...	1.2
St. Louis University School of Medicine	2.3	1.7	...	...	1.1
Washington University School of Medicine	2.4	1.4	...	...	0.9
Creighton University School of Medicine	2.0	...	...	...	0.6
University of Nebraska College of Medicine	5.0	...	...	...	1.5
Long Island College of Medicine	3.5	1.0	0.9	...	1.4
University of Buffalo School of Medicine	...	1.4	...	...	0.4
Columbia University College of Physicians and Surgeons	1.7	...	...	...	0.5
New York Homeopathic Medical College	9.4	7.5	2.6	...	5.2
Wake Forest College School of Medicine	3.3	...	...	...	1.7
University of North Dakota School of Medicine	3.4	6.9	...	...	5.2
Western Reserve University School of Medicine	3.8	2.7	...	...	1.9
Ohio State University College of Medicine	2.9	...	...	...	0.8
University of Oklahoma School of Medicine	6.4	...	...	...	2.0
University of Oregon Medical School	4.5	3.6	3.3	1.9	3.4
Hahnemann Medical College and Hospital of Philadelphia	...	0.9	...	...	0.2
Temple University School of Medicine	0.9	0.9	...	...	0.4
University of Pennsylvania School of Medicine	0.7	1.7	...	...	0.6
Woman's Medical College of Pennsylvania	13.6	2.5	...	...	5.1
University of Pittsburgh School of Medicine	...	1.5	3.0	6.5	2.7
Medical College of the State of South Carolina	...	...	10.8	...	2.7
University of South Dakota School of Medicine	10.0	...	...	...	6.7
Meharry Medical College	10.7	...	5.6	...	4.7
Baylor University College of Medicine	3.4	12.4	...	...	4.3
University of Texas School of Medicine	5.6	3.5	...	...	2.7
University of Utah School of Medicine	...	3.3	...	...	1.5
University of Vermont College of Medicine	2.3	...	...	2.6	1.3
University of Virginia Department of Medicine	4.2	3.4	1.7	3.4	3.2
Medical College of Virginia	3.6	...	1.0	2.2	1.7
West Virginia University School of Medicine	11.1	...	...	...	6.4
University of Wisconsin Medical School	4.1	...	1.8	...	1.9
Marquette University School of Medicine	...	3.1	...	...	0.7
University of Alberta Faculty of Medicine *	4.4	5.1	4.0	...	3.0
University of Manitoba Faculty of Medicine	20.6	1.9	1.7	...	6.1
Dalhousie University Faculty of Medicine	10.3	11.1	...	...	5.9
Queen's University Faculty of Medicine †	2.0	6.5	4.4	...	2.7
University of Western Ontario Medical School	2.7	...	...	...	0.8
University of Toronto Faculty of Medicine ‡	12.6	5.2	13.4	1.7	6.6
McGill University Faculty of Medicine	3.8	3.1	2.0	1.1	2.1
University of Montreal Faculty of Medicine	5.4	6.4	...	...	2.5
Laval University Faculty of Medicine	7.9	11.3	2.5	...	4.7
University of Saskatchewan School of Med. Sciences	20.0	...	...	...	9.6

* Fifth year, 4.0.
† Sixth year, 1.9.
‡ Fifth year, 2.7; sixth year, 0.8.

The greatest number of students who are repeating for scholastic reasons are, of course, students who have failed in the first year of medicine. Figures in the last two years are relatively small. There were students repeating courses for poor scholarship in sixty-four of the eighty-seven schools, of which thirteen had students repeating only in the first year; twenty in the first and second years; seven in the second year only; ten in the first, second and third years; two in the second and third years; four in all four years; two in the first and fourth years; two in the third year only; one in the last three years; two in the first and third years, and one in the first, third and fourth years.

These students, in the majority of cases, were repeating courses in the same institution. If a student is not given another chance in his own school it is almost impossible for him to obtain admission elsewhere.

TABLE 9.—*Repetition in Quarter System Schools Session 1932-1933*

Name of School	No. of Students Repeating
Yale University School of Medicine	11*
University of Chicago, Rush Medical College	14†
University of Chicago, The School of Medicine of the Division of the Biological Sciences	29‡
University of Minnesota Medical School	17§
University of Tennessee College of Medicine	48§
Total	119

* Five failed the qualifying examination, and six failed the final examination.
† Repeated subjects or were re-examined.
‡ Seventy-four failed the comprehensive examination of whom the above number repeated the examination.
§ Repeated one or more quarters.

WOMEN IN MEDICINE

During the past year there were 1,056 women studying medicine, or 101 more than the previous year. The percentage of women to all medical students this year is 4.7. There were 214 graduates, 6 more than last year. Of all the women matriculants, 136 were in attendance at the one medical college for women, the Woman's Medical College of Pennsylvania, while 920 were matriculated in the seventy-seven coeducational colleges in the United States and Canada. From the Woman's Medical College 27 were graduated, while 187 secured their degrees from coeducational institutions. As shown in table 10, the number of women students has been quite constant since 1920, although there has been an increase in the last five years.

TABLE 10.—*Women in Medicine*

Year	Women Students	Percentage of All Students	Women Graduates	Percentage of All Graduates
1905	1,073	4.1	219	4.0
1910	907	4.0	116	2.6
1915	592	4.0	92	2.6
1920	818	5.8	122	4.0
1925	910	5.0	204	5.1
1926	935	5.0	212	5.4
1927	964	4.9	189	4.7
1928	929	4.5	207	4.9
1929	925	4.4	214	4.8
1930	955	4.4	204	4.5
1931	960	4.5	217	4.6
1932	955	4.3	208	4.2
1933	1,056	4.7	214	4.4

NEGROES IN MEDICAL SCHOOLS

The Negro medical students for the session 1932-1933 are recorded by classes in table 11. The totals for 1931-1932 are shown for comparison. There were 428 students and 91 graduates, a decrease of 51 and 31, respectively, over the figures for the previous year. Meharry Medical College was organized in 1876 as a medical college for Negro youth, and at Howard Uni-

versity College of Medicine, organized in 1869, they compose a majority of those in attendance. These two schools graduated the majority of the Negro students.

TABLE 11.—*Negro Students and Graduates*

Name of College	Enrolment by Classes During 1932-1933					Graduates
	1st Year	2d Year	3d Year	4th Year	Totals	
University of California Medical School	..	..	..	2	2	..
College of Medical Evangelists	1	2	1	1	5	..
Howard University College of Medicine	52	58	47	41	198	41
Loyola University School of Medicine	..	..	..	1	1	..
University of Chicago, Rush Medical College	..	..	..	1	1	..
University of Chicago, The School of Medicine of the Division of the Biological Sciences	2	..	..	1	3	..
University of Illinois College of Medicine	..	2	..	3	5	..
Indiana University School of Medicine	1	1	1	1	4	1
State University of Iowa College of Medicine	..	..	1	1	2	1
University of Kansas School of Medicine	..	1	..	..	1	..
Tufts College Medical School	..	1	..	..	1	..
University of Michigan Medical School	..	..	2	1	3	1
Detroit College of Medicine and Surgery	..	..	1	..	1	2
Long Island College of Medicine	..	1	..	1	2	1
Columbia University College of Physicians and Surgeons	1	..	2	..	3	..
New York Homeopathic Medical College and Flower Hospital	1	2	..	1	4	1
New York University, University and Bellevue Hospital Medical College	..	1	..	..	1	..
University of Cincinnati College of Medicine	..	1	..	..	1	..
Western Reserve University School of Medicine	1	1	1	1	4	1
Ohio State University College of Medicine	2	..	1	3	6	3
University of Pennsylvania School of Medicine	..	..	1	..	1	..
Meharry Medical College	56	41	36	38	171	35
Dalhousie University Faculty of Medicine	..	1	..	1	2	1
McGill University Faculty of Medicine	2	2	..	1	5	2
University of Montreal Faculty of Medicine	1	..	..	..	1	..
Total during 1932-1933	120	115	94	99	428	91
Total during 1931-1932	144	100	113	122	479	122

PHYSICAL THERAPY

Physical therapy is reported as being taught in some form in fifty-four of the schools of this country and Canada, while thirty-one indicate that they offer no instruction whatever. In many of the schools, instruction is given under one of the clinical departments. Several schools offer graduate study but do not give undergraduate instruction. The results of a survey on this subject can be noted in table 12.

TABLE 12.—*Physical Therapy*

		No. of Schools
No instruction		31
Undergraduate instruction—no separate department		29
Connected with therapeutics	4	
Connected with radiology	3	
Included in department of medicine	1	
Subdivision of orthopedics	1	
Department of nervous and mental diseases	1	
Given at two hospitals connected with schools	1	
Given to a limited extent	1	
In conjunction with physical education	1	
Incident to courses in surgery	1	
Unspecified	15	
Undergraduate instruction—separate department		6
Undergraduate instruction—not indicated whether separate department		1
Undergraduate and graduate instruction—no separate department		9
Division of department of medicine	1	
Connected with orthopedics	2	
Included department of radiology	1	
Part of course in therapeutics	1	
Subdivision of surgery	1	
In connection with psychiatry	1	
In university hospital	1	
Unspecified	1	
Undergraduate and graduate instruction—separate department		7
Graduate instruction—no separate department		1
Graduate instruction—no mention made of separate department		1
Reported none this year but will give course next college session to undergraduates and probably also graduates		1
Reported none in medical school but in separate department of hospital		1
Total		87

GRADUATES OF MEDICAL SCHOOLS OTHER THAN THOSE OF THE UNITED STATES

Conferences initated by the Council have considered the problems created by the migration of large numbers of American students to medical schools abroad with the result that the Federation of State Medical Boards of the United States adopted the following resolution:

1. That no American student matriculating in a European medical school subsequent to the academic year 1932-1933 will be admitted to any state medical licensing examination who does not, before beginning such medical study, secure from a state board of medical examiners or other competent state authority a certificate endorsed by the Association of American Medical Colleges or the Council on Medical Education and Hospitals of the American Medical Association showing that he has met the premedical educational requirements prescribed by the aforementioned associations.

2. That no student either American or European matriculating in a European medical school subsequent to the academic year 1932-1933 will be admitted to any state medical licensing examination who does not present satisfactory evidence of premedical education equivalent to the requirements of the Association of American Medical Colleges, and the Council on Medical Education and Hospitals of the American Medical Association, and graduation from a European medical school after a medical course of at least four academic years, and submit evidence of having satisfactorily passed the examination to obtain a license to practice medicine in the country in which the medical school from which he is graduated is located.

TABLE 13.—*Graduates of Medical Faculties of Universities in Countries Other than the United States and Canada Examined by Licensing Boards of the United States and Possessions, 1927-1932, Inclusive*

	1927-1931 Inclusive		1932	
	Number Examined	Percentage Failed	Number Examined	Percentage Failed
AFRICA				
1. University of the Witwatersrand, Johannesburg	1	0.0	..	..
AUSTRALIA				
2. University of Melbourne	2	0.0	..	..
3. University of Sydney	1	0.0	..	..
AUSTRIA				
4. Karl-Franzens-Universität, Graz	7	57.1	4	75.0
5. Leopold-Franzens-Universität, Innsbruck	2	0.0	1	100.0
6. Universität Wien	65	33.8	12	25.0
BELGIUM				
7. Université Libre de Bruxelles	1	0.0	..	..
8. Universiteit Gent	1	100.0	..	..
9. Université de Liège	2	0.0	..	..
10. Université Catholique de Louvain	3	33.3	2	50.0
CHINA				
11. Hunan-Yale College of Medicine, Changsha	1	0.0	..	..
12. Mukden Medical College	1	100.0	..	..
13. Peiping Union Medical College	1	0.0	..	..
14. Pennsylvania Medical School, Shanghai	1	0.0	1	0.0
15. Sun Ville Medical College	2	100.0	..	..
COLOMBIA				
16. Universidad de Cartagena	..	..	1	0.0
CUBA				
17. Universidad de la Habana	18	33.3	4	25.0
CZECHOSLOVAKIA				
18. Univerzity Komenského, Bratislave	3	66.7	..	..
19. Masarykovy University, Brně	1	100.0	1	100.0
20. Deutsche Universität, Prag	16	31.3	6	66.7
21. Karlovy University, Praze	12	41.7	2	50.0
DENMARK				
22. Københavns Universitet	4	25.0	..	..
DOMINICAN REPUBLIC				
23. Universidad de Santo Domingo	..	..	3	33.3
EL SALVADOR				
24. Universidad Nacional, San Salvador	2	50.0	..	..
ENGLAND				
25. King's College Hospital Medical School, London	..	..	2	0.0
26. Middlesex Hospital Medical School, London	..	..	1	0.0
27. University of Durham, Newcastle-upon-Tyne	1	0.0	..	..
28. University of Liverpool	2	0.0	..	..
29. University of London	3	0.0	1	100.0
30. University of Oxford	1	0.0	..	..
31. Royal College of Physicians, London, Licentiate of, and Member of the Royal College of Surgeons, England	..	..	2	0.0
32. Royal College of Physicians, London, and the Royal College of Surgeons, England, Licentiate of	10	0.0	..	..
33. Royal College of Physicians, London, and the Royal College of Surgeons, England, Member of	2	50.0	..	..
34. Royal College of Surgeons, Fellow of the	1	0.0	..	..

TABLE 13.—*Graduates of Medical Faculties of Universities in Countries Other than the United States and Canada Examined by Licensing Boards of the United States and Possessions, 1927-1932, Inclusive—Continued*

	1927-1931 Inclusive		1932	
	Number Examined	Percentage Failed	Number Examined	Percentage Failed
FRANCE				
35. Université de Bordeaux	4	100.0	1	0.0
36. Université de Lyon	1	0.0	1	0.0
37. Université de Montpellier	1	0.0	..	..
38. Université de Nancy	1	0.0	..	..
39. Université de Paris	21	33.3	8	37.5
40. Université de Toulouse	1	0.0	..	..
41. Université de Strasbourg	3	33.3	..	..
GERMANY				
42. Friedrich-Wilhelms-Universität, Berlin	38	39.5	2	100.0
43. Rheinische Friedrich-Wilhelms-Universität, Bonn	6	33.3	..	..
44. Schlesische-Friedrich-Wilhelms-Universität, Breslau	7	85.7	..	..
45. Friedrich-Alexanders-Universität, Erlangen	3	33.3	1	100.0
46. Albert-Ludwigs-Universität, Freiburg	5	20.0	2	50.0
47. Johann Wolfgang Göthe-Universität, Frankfurt-am-Main	2	50.0	..	..
48. Hessische Ludwigs-Universität, Giessen	1	0.0	..	..
49. Georg-August Universität, Göttingen	3	0.0	..	..
50. Universität Greifswald	4	75.0	..	..
51. Hamburgische Universität	1	0.0	..	..
52. Universität Heidelberg	1	0.0	..	..
53. Thüringische Landesuniversität, Jena	5	60.0	4	25.0
54. Christian-Albrechts-Universität, Kiel	7	57.1	..	..
55. Albertus-Universität, Königsberg	12	66.7	..	..
56. Universität Leipzig	10	50.0	2	50.0
57. Ludwig-Maximilians-Universität, München	18	38.9	1	0.0
58. Eberhard-Karls-Universität, Tübingen	2	50.0	..	..
59. Julius-Maximilians-Universität, Würzburg	13	61.5	1	100.0
GREECE				
60. National University of Athens	55	78.2	1	100.0
HONDURAS				
61. Universidad Central de la República de Honduras, Tegucigalpa	1	0.0	..	..
HUNGARY				
62. Magyar Királyi Pázmány Petrus Tudományegyetem, Budapest	30	36.7	3	0.0
63. Magyar Királyi Tisza-István-Tudományegyetem, Debrecen	1	0.0	..	..
64. Magyar Királyi Erzsébet Tudományegyetem, Pecs	5	20.0	2	100.0
65. Magyar Királyi Ferencz József Tudományegyetem, Szeged	3	0.0	1	100.0
IRELAND				
66. Queen's University, Belfast	3	33.3	3	33.3
67. National University of Ireland University College, Dublin	20	10.0	..	..
68. Trinity College, Dublin	3	33.3	..	..
69. Royal College of Surgeons, Licentiate of	2	0.0	..	..
ITALY				
70. Regia Università di Benito Mussolini, Bari	1	100.0	..	..
71. Regia Università di Bologna	12	41.7	1	100.0
72. Regia Università di Cagliari	2	50.0	..	..
73. Regia Università di Catania	4	75.0	1	0.0
74. Regia Università di Firenze	2	100.0	4	25.0
75. Regia Università di Genova	2	50.0	3	66.7
76. Regia Università di Messina	2	0.0	..	..
77. Regia Università di Modena	8	75.0	..	..
78. Regia Università di Napoli	176	76.7	26	57.8
79. Regia Università di Padova	12	75.0	..	..
80. Regia Università di Palermo	34	73.5	9	88.9
81. Regia Università di Pavia	7	85.7	1	100.0
82. Regia Università di Pisa	4	75.0	..	..
83. Regia Università di Roma	42	57.1	13	69.2
84. Regia Università di Siena	2	0.0	..	..
85. Regia Università di Torino	1	100.0	..	..
JAPAN				
86. Kumamoto Medical College	1	100.0	..	..
87. Nagasaki Medical College	1	100.0	..	..
88. Osaka Imperial University	1	0.0	..	..
89. Tohoku Imperial University, Sendai	6	100.0	..	..
90. Keio Gijuku University, Tokyo	3	66.7	..	..
91. Japan Medical College, Tokyo	6	50.0	..	..
92. Tokyo Charity Hospital Medical College	10	90.0	..	..
93. Tokyo Imperial University	8	37.5	..	..
94. Tokyo Women's Medical College	4	50.0	..	..
MEXICO				
95. Universidad Nacional de Guadalajara	16	43.8	1	0.0
96. Escuela de Medicina y de Farmacia de Yucatan, Merida	1	0.0	..	..
MEXICO—Continued				
97. Escuela Libre de Homeopatia, México	6	16.7	..	..
98. Escuela Médico Militär, México	3	0.0	1	0.0
99. Universidad Nacional, México	30	6.7	1	0.0
100. Escuela de Medicina de Nuevo León, Monterrey	4	0.0	..	..
101. Escuela de Medicina, Oaxaca	1	0.0	..	..
102. Escuela de Medicina de San Luis Potosi	4	0.0	..	..
NETHERLANDS				
103. Universiteit Van Amsterdam	1	100.0	..	..
NICARAGUA				
104. Universidad de Nicaragua	1	0.0	..	..
NORWAY				
105. Kongelige Frederiks Universitets, Oslo	2	0.0	1	0.0
POLAND				
106. Uniwersytetu Lwów	4	25.0	2	50.0
107. Uniwersytetu Warszawa	3	66.7	..	..
108. Uniwersytetu Stefana Batorego, Wilnie	1	0.0	..	..
PORTUGAL				
109. Universidade de Coimbra	4	50.0	..	..
110. Faculdade de Medicina de Lisbôa	3	0.0	1	0.0
111. Faculdade de Medicina do Pôrto	12	75.0	..	..
RUMANIA				
112. Universitatea din Bucuresti	..	..	2	50.0
113. Universitatea Regele Ferdinand I-iu din Cluj	5	40.0	1	100.0
114. Universitatea din Iasi	2	0.0	..	..
SCOTLAND				
115. University of Aberdeen	2	0.0	1	100.0
116. School of Medicine of the Royal Colleges, Edinburgh	1	100.0	..	..
117. University of Edinburgh	20	0.0	20	15.0
118. University of Glasgow	6	33.3	..	..
119. University of St. Andrews	..	..	1	100.0
120. Royal College of Physicians, Edinburgh, Licentiate of	3	33.3	..	..
121. Royal College of Physicians, the Royal College of Surgeons, Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow, Licentiate of	..	..	1	100.0
122. Royal College of Surgeons, Edinburgh, Licentiate of	..	..	1	0.0
123. Royal Faculty of Physicians and Surgeons of Glasgow, Licentiate of	3	0.0	..	..
SPAIN				
124. Universidad de Barcelona	2	0.0	..	..
125. Universidad Central de España, Madrid	15	46.7	..	..
SWEDEN				
126. Kungl. Universitetet i Uppsala	1	0.0	..	..
SWITZERLAND				
127. Universität Basel	2	0.0	..	..
128. Universität Bern	10	50.0	3	66.7
129. Université de Genève	10	30.0	..	..
130. Université de Lausanne	6	33.3	..	..
131. Universität Zürich	5	60.0	1	0.0
SYRIA				
132. American University of Beirut	9	33.3	..	..
TURKEY				
133. University of Istanbul	5	80.0	..	..
UNION OF SOCIALIST SOVIET REPUBLICS				
134. Charkovsky Universitet	24	54.2	..	..
135. Ekaterinoslav Medical Inst., Dnipropetrovsk	2	100.0	..	..
136. Dragomanov Institute, Kiev	29	58.6	..	..
137. Irkutsk Medical Institute	1	0.0	..	..
138. State University of Kazan	2	50.0	..	..
139. Medical Institute of Leningrad	9	44.4	..	..
140. State Institute of Medical Science, Leningrad	8	50.0	..	..
141. Moscow State University	14	71.4	3	33.3
142. Odessa State Medical Institute	11	63.6	..	..
143. Psycho-Neurological Institute, Petrograd	..	..	2	100.0
144. North Caucasian State University, Rostov-on-the-Don	9	55.6	..	..
145. University of Saratov	8	62.5	1	100.0
146. University of Tomsk	12	50.0	1	100.0
147. Voronej Government University	6	33.3	..	..
YUGOSLAVIA				
148. Zagrebaskog Universiteta	1	0.0	..	..

This policy of the federation has been made effective by individual action on the part of the states. For the purpose of keeping closely in touch with developments in other countries, a joint committee was appointed representing the Council on Medical Education and Hospitals of the American Medical Association, the Federation of State Medical Boards of the United States, the New York Board of Regents, the National Board of Medical Examiners, and the Association of American Medical Colleges.

The governments of France and Germany have already taken cognizance of the situation and sent representatives to this country to discuss appropriate measures for dealing with students from the United States. In some universities, entrance requirements have been raised; in some, student enrolment has been limited. In all cases, credentials will be carefully scrutinized. Altogether, a better understanding has been achieved.

A total of 237 medical faculties were solicited inquiring as to the number of students, citizens of the

TABLE 14.—*Citizens of the United States Enrolled in Medical Faculties Abroad*

	Totals	Students, 1932-1933	
		Enrolled	Completed Course
Austria	21		0
Karl Franzens-Universität, Graz		10	0
Leopold-Franzens-Universität, Innsbruck		11	0
Belgium	10		1
Université Libre de Bruxelles		6	0
Université Catholique de Louvain		4	1
Canada	324		73
University of Alberta, Edmonton		1	0
Dalhousie University, Halifax, N.S.		27	3
Queen's University, Kingston, Ont		18	1
University of Western Ontario, London		17	3
McGill University, Montreal, Que		217	40
University of Montreal, Que		22	22
Laval University, Quebec		14	3
University of Saskatchewan, Saskatoon		1	..
University of Toronto, Ont.		5	0
University of Manitoba, Winnipeg		2	1
China	12		0
Peiping Union Medical College		1	0
Pennsylvania Medical School, Shanghai		11	0
Czechoslovakia	19		0
Univerzity Komenského, Bratislave		1	0
Masarykovy University, Brně		1	0
Deutsche Universität, Prag		5	0
Karlovy University, Praze		12	0
England	57		1
University of Birmingham		3	0
University of Bristol		4	0
University of Cambridge		6	0
University of Liverpool		1	0
University of London			
Charing Cross Hospital Medical School		12	0
Guy's Hospital Medical School		1	0
King's College Hospital Medical School		12	0
London (Royal Free Hospital) School of Medicine for Women		3	0
Middlesex Hospital Medical School		1	1
St. Bartholomew's Hospital Medical College		1	0
St. George's Hospital Medical School		4	0
St. Mary's Hospital Medical School		1	0
University College Hospital Medical School		1	0
University College, London		1	0
University of Sheffield		6	0
France	75		2
Université de Lyon		4	0
Université de Montpellier		12	0
Université de Paris		56	2
Université de Strasbourg		2	0
Université de Toulouse		1	0
Germany	33*		38
Rheinische Friedrich-Wilhelms-Universität, Bonn		82	35
Johann Wolfgang Göthe-Universität, Frankfurt-am-Main		29	0
Hessische Ludwigs-Universität, Giessen		14	0
Georg-August-Universität, Göttingen		20	0
Universität Greifswald		2	0
Germany—Continued			
Universität Halle		29	0
Hamburgische Universität		15	0
Albertus-Universität, Königsberg		16	0
Universität Köln		27	0
Universität Leipzig		28	1
Philipps-Universität, Marburg		2	0
Ludwig-Maximilians-Universität, München		61	2
Universität Rostock		4	0
Eberhard-Karls-Universität, Tübingen		8	0
Greece	4		1
National University of Athens		4	1
Hungary	13		1
Magyar Királyi Pázmány Petrus Tudományegyetem, Budapest		8	1
Magyar Királyi Ferencz József Tudományegyetem, Szeged		5	0
Ireland	19		0
National University of Ireland University College, Dublin		1	0
University of Dublin School of Physic		18	0
Italy	222		214
Regia Università di Bologna		59	1
Regia Università di Firenze		4	0
Regia Università di Genova		5	0
Regia Università di Milano		2	0
Regia Università di Napoli		20	6
Regia Università di Roma		132	207
Lithuania	4		0
Vytauto Didžiojo Universitetas, Kuanas		4	0
Poland	3		0
Uniwersytetu Lwów		2	0
Uniwersytetu Poznańskiego		1	0
Scotland	376		9
University of Aberdeen		12	1
School of Medicine of the Royal Colleges, Edinburgh		143	0
University of Edinburgh		46	2
Anderson College of Medicine, Glasgow		55	0
University of Glasgow		41	0
University of St. Andrews		79	6
Switzerland	403		5
Universität Basel		77	0
Universität Bern		132	0
Université de Genève		50	5
Université de Lausanne		72	0
Universität Zurich		72	0
Syria	7		0
American University of Beirut		7	0
Yugoslavia	5		1
Beogradskog Universiteta		1	1
Zagrebaskog Universiteta		4	0
Totals for 1932-1933	1,911		346
*Totals for 1931-1932	1,483		118
*Totals for 1930-1931	977		85

* Figures revised.

United States, who were enrolled during the last semester of the scholastic year 1932-1933 and the number who completed the medical course at the end of each semester of the scholastic year 1932-1933. Of these 127 replied, 82 indicating United States citizens were enrolled and 45 reporting none enrolled. Medical schools in fifty-seven countries abroad, Canada and the Philippine Islands were solicited and the countries in which citizens of this country are studying total seventeen and Canada. A total of 157 European schools were written to, of which 95 replied, 69 indicating they had students and 26 reporting none. In the eighty-two medical faculties in which United States citizens are studying, a total of 1,911 were enrolled, of whom 346 completed the course, an increase of 428 and 228, respectively, over those enrolled in the previous session. These data are enumerated in table 14. The number of physicians educated abroad who were licensed in the United States in the last five years are given in table 13.

The problem of the overcrowding of the medical profession in this country is acute. Our own schools are turning out graduates in excess of the demand. To permit the large number of applicants who cannot be accommodated in the medical schools of the United States to study abroad and then return here to practice would inevitably lower the standards and corrupt the ideals of medicine. Now that steps have been taken to check the tide of migrating students to Europe, it is to be expected that it will turn in other directions. As a basis for intelligent action and cooperation, a worldwide survey of medical education and licensure is urgently needed.

PART III. EDUCATION OF INTERNS AND RESIDENTS IN APPROVED HOSPITALS

For the calendar year 1932, 683 general hospitals reported the present status of their educational programs. This represents a slight increase over the 676 replies that were tabulated in the Educational number of 1932.

All but one approved hospital cooperated. One army hospital and one navy hospital report that no interns are to be trained and, as a result, these have been omitted from the tabulation.

MEDICAL GRADUATION AND INTERNSHIP

Table 15 indicates the present relationship between the number of graduates of medical colleges in the United States and Canada and the number serving internships. The data refer to the academic year 1931-1932 and extend to July 1, 1932. There is, of course, a discrepancy between these figures and those supplied in other tables which generally represent conditions as of July 1, 1933.

The column containing the "number interning" includes 1,224 graduates serving internships as a requirement for the M.D. degree. Subtracting this figure from the total number interning leaves 4,067, or 95 per cent of 4,270, the total number of graduates.

TABLE 15.—*Graduates of 1932 and Fifth Year Students who Have or Are Serving Internships*

School	Number Graduates	Number Interning
University of Arkansas School of Medicine	46	41
University of California Medical School	*	54
College of Medical Evangelists	*	70
University of Southern California School of Medicine	*	7
Stanford University School of Medicine	*	49
University of Colorado School of Medicine	53	53
Yale University School of Medicine	44	44
Georgetown University School of Medicine	134	134
George Washington University School of Medicine	57	57
Howard University College of Medicine	55	49
Emory University School of Medicine	53	50
University of Georgia School of Medicine	38	38
Loyola University School of Medicine	*	114
Northwestern University Medical School	*	146
University of Chicago, Rush Medical College	*	125
University of Chicago, The School of Medicine of the Division of the Biological Sciences	*	18
University of Illinois College of Medicine	*	147
Indiana University School of Medicine	94	89
State University of Iowa College of Medicine	98	96
University of Kansas School of Medicine	53	53
University of Louisville School of Medicine	88	76
Tulane University of Louisiana School of Medicine	108	102
Johns Hopkins University School of Medicine	67	64
University of Maryland School of Medicine and College of Physicians and Surgeons	102	99
Boston University School of Medicine	52	52
Harvard University Medical School	136	136
Tufts College Medical School	115	107
University of Michigan Medical School	129	128
Detroit College of Medicine and Surgery	*	65
University of Minnesota Medical School	*	166
St. Louis University School of Medicine	105	100
Washington University School of Medicine	88	87
Creighton University School of Medicine	51	49
University of Nebraska College of Medicine	78	78
Albany Medical College	27	27
Long Island College of Medicine	110	98
University of Buffalo School of Medicine	59	59
Columbia University College of Physicians and Surgs.	101	87
Cornell University Medical College	60	60
New York Homeopathic Medical College and Flower Hospital	80	69
New York University, University and Bellevue Hospital Medical College	116	105
University of Rochester School of Medicine	35	35
Syracuse University College of Medicine	47	47
Duke University School of Medicine	18**	18
University of Cincinnati College of Medicine	*	67
Western Reserve University School of Medicine	57	55
Ohio State University College of Medicine	75	67
University of Oklahoma School of Medicine	47	47
University of Oregon Medical School	55	54
Hahnemann Medical College and Hospital of Philadelphia	111	111
Jefferson Medical College of Philadelphia	143	143
Temple University School of Medicine	107	107
University of Pennsylvania School of Medicine	132	131
Woman's Medical College of Pennsylvania	22	21
University of Pittsburgh School of Medicine	66	66
Medical College of the State of South Carolina	33	31
University of Tennessee College of Medicine	112	98
Meharry Medical College	50	44
Vanderbilt University School of Medicine	53	53
Baylor University College of Medicine	67	64
University of Texas School of Medicine	71	67
University of Vermont College of Medicine	36	33
University of Virginia Department of Medicine	49	49
Medical College of Virginia	91	84
University of Wisconsin Medical School	53	52
Marquette University School of Medicine	*	60
University of Alberta Faculty of Medicine	22	22
University of Manitoba Faculty of Medicine	*	40
Dalhousie University Faculty of Medicine	*	20
Queen's University Faculty of Medicine	46	43
University of Western Ontario Medical School	34	32
University of Toronto Faculty of Medicine	143	129
McGill University Faculty of Medicine	98	98
University of Montreal Faculty of Medicine	*	49
Totals	4,270	5,291

* An internship or other acceptable clinical work is a requirement for graduation.

** Two year internship requirement after graduation.

REQUIRED INTERNSHIPS

Tables 16 and 17 show the state licensing boards and medical colleges now requiring internships for licensure and the M.D. degree, respectively. Vermont is added to the list of states and Louisiana State University Medical Center to the medical colleges. The University of Oklahoma has rescinded its action requiring the internship.

The hospital internship has been adopted as an essential qualification for the license to practice in seventeen states, the District of Columbia and Alaska. These states and the effective date of the requirement are as follows:

TABLE 16.—*Internship Required by State Licensing Boards*

Pennsylvania	1914	South Dakota	1925
New Jersey	1916	Utah	1926
Alaska	1917	Wisconsin	1927
Rhode Island	1917	District of Columbia	1930
North Dakota	1918	Wyoming	1931
Washington	1919	West Virginia	1932
Michigan	1922	Oklahoma	1933
Illinois	1923	Oregon	1933
Delaware	1924	Vermont	1934
Iowa	1924		

Fifteen medical colleges in the United States and three in Canada have adopted a year of internship or other acceptable clinical work as a prerequisite for graduation. Duke University School of Medicine requires two years of internship or laboratory work after graduation. These colleges and the effective date of the requirement are as follows:

TABLE 17.—*Hospital Internship Required by Medical Colleges*

	Effective Date
UNITED STATES	
University of Minnesota Medical School	1915
Stanford University School of Medicine	1919
University of Chicago, Rush Medical College	1919
University of California Medical School	1919
Marquette University School of Medicine	1920
Northwestern University Medical School	1920
University of Illinois College of Medicine	1922
Loyola University School of Medicine	1922
Detroit College of Medicine and Surgery	1924
University of Cincinnati College of Medicine	1926
College of Medical Evangelists	1927
University of Chicago, The School of Medicine of the Division of the Biological Sciences	1930
Duke University School of Medicine	1932
University of Southern California School of Medicine	1933
Louisiana State University Medical Center	1934
CANADA	
University of Manitoba Faculty of Medicine	
Dalhousie University Faculty of Medicine	
University of Montreal Faculty of Medicine	

GROWTH OF INTERNSHIPS

Table 18 indicates that more hospitals each year are qualifying for internship approval and the steady increase in the number of positions continues. This increase, however, has been insufficient during the present period of financial depression to take care of all applicants. The practice of remaining for second and even third years of internship in approved hospitals has become so widespread as to prevent, in some instances, recent graduates from finding openings in approved hospitals. The assumption is that, as soon as practice again attracts the many residents and interns continuing their hospital experience, this problem will readily solve itself. In any event, those interns who had not been placed by July 1 must have been unfortunate or very improvident.

TABLE 18.—*Growth of Internships*

	1914	1920	1925	1930	1931	1932
Number of approved hospitals	603	593	528	654	674	689
Medical graduates	3,594	3,047	3,974	4,565	4,735	4,936
Number of internships	3,095	3,420	3,832	5,531	6,154	6,204

Data compiled just before publication show that the 689 approved hospitals are employing 6,204 interns.

Compared to the figure in table 15 representing recent graduates now serving in hospitals, somewhat less than a thousand interns are remaining in hospitals for additional periods of internship. This figure just about represents the proportion by which positions exceed applicants in normal times.

DENTAL INTERNSHIPS

By request of a number of dentists, the blank for annual reports on internships this year contained several questions relating to dental interns. The replies are tabulated in table 19. Information has been received only from approved internship hospitals in the belief that positions offered by such institutions to recent dental graduates would partake of the advanced status of the approved medical internships. There are, no doubt, additional internships available in other hospitals. However, these 104 hospitals offering 166 dental internships would represent the pick of present supervised experience.

Information was also received as to how this experience was supervised. The replies were so nearly uniform as hardly to need tabulation. In all but a few instances, teaching and supervision were stated to be in the hands of the attending dental staff. A few mentioned resident dentists as furnishing this service. The University Hospitals at Iowa City, the Louisville City Hospital at Louisville, Ky., the Maryland General Hospital at Baltimore, the University Hospital at Minneapolis and the Presbyterian Hospital at Pittsburgh have affiliations with faculties of local dental schools.

THE INTERN COMMITTEE

Year by year the conviction grows that the intern committee is by far the most important single factor in the training of interns in approved hospitals. If it is true that the greater the cooperation of the staff, the better the internship, it is likewise true that staff cooperation is a direct product of the earnestness and diligence of the intern committee or in direct proportion to it. Of all approved hospitals, only eighteen definitely state that no intern committee exists.

The majority of these committees have no regular meetings, although many were stated to meet each month. As is well known, the usual duties of the intern committee consist largely in studying applications, making appointments, and establishing contacts with the medical schools or fraternities. Not infrequently they are called on to arrange schedules and discipline unruly interns; but, if residents are employed, they even avoid such responsibilities. There often is a lecture by the chairman to the incoming interns on

TABLE 19.—*Approved Intern Hospitals Which Employ Dental Interns*

Hospital	Length of Service Number	Length of Service (Months)	Salary per Month
General Hospital of Fresno County, Fresno, Calif.	1	12	$25
Los Angeles County General Hospital, Los Angeles	1	12	None
Highland Hospital of Alameda Co., Oakland, Calif.	1	12	$25
Letterman General Hospital, San Francisco	2	24	(a)
San Francisco Hospital, San Francisco, (b)	1	12	$50
U. S. Marine Hospital, San Francisco	2	12	$100
Hartford Hospital, Hartford, Conn	1	12	None
St. Mary's Hospital, Waterbury, Conn	1	12	$25
Freedmen's Hospital (col.), Washington, D. C	1	12	$10
Georgetown University Hospital, Washington, D. C.	1	12	$10
Providence Hospital, Washington, D. C	1	12	$10
Cook County Hospital, Chicago	2	12	None
St. Luke's Hospital, Chicago	1	12	None
U. S. Marine Hospital, Chicago	1	12	$100
University of Chicago Clinics, Chicago	1	12	None
James Whitcomb Riley Hospital for Children, William H. Coleman Hospital for Women and Robert W. Long Hospital, Indianapolis	1	12	$12.50
University Hospitals, Iowa City	2	12	None
Louisville City Hospital, Louisville, Ky	1	12	$125
Charity Hospital, New Orleans	1	12	Bonus
U. S. Marine Hospital, New Orleans	5	12	(a)
Baltimore City Hospitals, Baltimore	2	12	$25
Johns Hopkins Hospital, Baltimore	1	12	None
Maryland General Hospital, Baltimore	1	12	$10
U. S. Marine Hospital, Baltimore	2	12	(a)
Massachusetts Memorial Hospital, Boston	1	12	None
Peter Bent Brigham Hospital, Boston	1	12	None
Worcester City Hospital, Worcester, Mass	1	12	None
University Hospital, Ann Arbor, Mich	2(e)	24	.....
Grace Hospital, Detroit	2	12	None
Harper Hospital, Detroit	2	12	$25
Hurley Hospital, Flint, Mich	1	Open	$100
Minneapolis General Hospital, Minneapolis	3	12	None
University Hospitals, Minneapolis	1	12	None
Ancker Hospital, St. Paul	1	12	None
Creighton Memorial St. Joseph's Hospital, Omaha	1	12	$5
Englewood Hospital, Englewood, N. J	2	12	$22
Mountainside Hospital, Montclair, N. J	1	12	$25
Newark Beth Israel Hospital, Newark, N. J	2	12	$8.50
Newark City Hospital, Newark, N. J	1	12	None
Mercer Hospital, Trenton, N. J	1	12	$30
Binghamton City Hospital, Binghamton, N. Y	1	12	$50
Beth Moses Hospital, Brooklyn (b)	1	12	...
Coney Island Hospital, Brooklyn (b)	1	12	None
Cumberland Hospital, Brooklyn	2	12	None
Greenpoint Hospital Brooklyn	2	12	None
Israel Zion Hospital, Brooklyn	1	6	None
Jewish Hospital of Brooklyn	1	12	None
Kings County Hospital, Brooklyn	4	12	None
St. Mary's Hospital, Brooklyn	2	12	None
Buffalo City Hospital	7	12	$100
Flushing Hospital and Dispensary, Flushing, N. Y.	1	..	$150
St. John's Long Island City Hospital, Long Island, N. Y.	1	24	.....
Bellevue Hospital, New York	6	12	None
Beth Israel Hospital, New York	1	12	.....
Fifth Avenue Hospital, New York	1	12	None
Fordham Hospital, New York	2	12	None
Gouverneur Hospital, New York	2	12	None
Harlem Hospital, New York	2	12	None
Hospital for Joint Diseases, New York	1	12	None
Lenox Hill Hospital, New York	1	12	$25(d)
Lincoln Hospital, New York	3	12	None
Metropolitan Hospital, New York	1	12	None
Montefiore Hospital, New York	2	12	$25
Mt. Sinai Hospital, New York	2	12	None
New York City Hospital	1	12	None
New York Polyclinic Medical School and Hospital, New York	3	12	None
New York Post-Graduate Medical School and Hospital, New York	2	12	None
Presbyterian and Sloane Hospitals, New York	2	12	None
St. Vincent's Hospital, New York	1	12	None
Sydenham Hospital, New York	2	12	$60(e)
United Hospital, Port Chester, N. Y.	1	12	.....
Strong Memorial Hospital, Rochester, N. Y.	1	12	None
U. S. Marine Hospital, Staten Island, N. Y.	2	12	$100
Grasslands Hospital, Valhalla, N. Y.	3	12	$50
Cincinnati General Hospital, Cincinnati	6	12	None
City Hospital, Cleveland	1	12	$42
Mt. Sinai Hospital, Cleveland	1	12	$10
St. Luke's Hospital, Cleveland	1	12	None
Miami Valley Hospital, Dayton, Ohio	1	12	$25
St. Elizabeth Hospital, Dayton, Ohio	1	12	$25
Youngstown Hospital, Youngstown, Ohio	1	12	$50
Multnomah Hospital, Portland, Ore	1	12	...
Bryn Mawr Hospital, Bryn Mawr, Pa	1	12	$50
Chester Hospital, Chester, Pa	1	12	$20
Easton Hospital, Easton, Pa	1	12	None
Fredk. Douglass Mem. Hospital (col.), Philadelphia	1	12	.....
Hahnemann Hospital, Philadelphia	1	12	.....
Hospital of the Protestant Episcopal Church in Philadelphia	1	12	None
Hospital of the University of Pennsylvania, Philadelphia	1	12	None
Jefferson Medical College Hospital, Philadelphia	1	12	None
Jewish Hospital, Philadelphia	2	12	None
Misericordia Hospital, Philadelphia	1	12	None
Pennsylvania Hospital, Philadelphia	2	12	None
Philadelphia General Hospital	1	12	None
Presbyterian Hospital, Philadelphia	2	12	None
Temple University Hospital, Philadelphia	2	12	None
Presbyterian Hospital, Pittsburgh	3	12	None
Rhode Island Hospital, Providence	1	12	.....
St. Joseph's Hospital, Providence	1	12	None
Knoxville General Hospital, Knoxville, Tenn	1	12	$25
St. Joseph's Hospital, Memphis, Tenn	1	12	None
Parkland Hospital, Dallas, Texas	1	12	$25
Jefferson Davis Hospital, Houston, Texas	3	12	$45
Harborview Hospital, Seattle	1	12	$30

(a) Salary established by Government Pay Tables according to rank and service.
(b) Extern.
(c) One senior and one junior.
(d) Bonus at end of year.
(e) Salary does not include maintenance.

the first day of service. From then on more or less haphazard, desultory contact is maintained with the house staff.

Despite the imperfections of this present arrangement, the intern committee represents a distinct advance over supervision by the staff, either as a whole or individually. This centralization of responsibility has provided a widespread stimulus toward acquiring definite principles and an adequate conception of what the internship has come to mean. The reports of the Council's hospital inspectors almost invariably indicate that a hospital with an active intern committee is a hospital in which the interns are, much more often than not, satisfied, loyal and industrious.

The conviction also has been growing that interns cannot be expected to derive full benefit from their hospital experience unless some attempt is made to limit the actual number of attending men with whom they are to be associated. It is educationally unsound to expect an intern to leave his medical school and absorb the conflicting views and empiricism of a hundred or more staff members. There is a well developed opinion that, should those staff members who by training or inclination qualify as teachers be formulated in a rather definite teaching group, the internship would be much better for it.

However, there has also been a movement away from overstandardization in medical education and this has come to include the internship, in the belief that no benefit is gained by attempting to produce physicians all in the same mold.

STAFF ACTIVITIES FOR THE INTERNS

The accompanying tables illustrate the principal opportunities now made available and supervised by hospital staffs. It expresses in tabular form the training which the present body of interns is obtaining in a number of the less usual services. It will be noted that pharmacy is most neglected and that opportunities for the study of contagious diseases, prenatal cases, psychiatry and tuberculosis are relatively infrequent. Greater emphasis on these particular specialties in hospitals could conceivably have some effect on the recognition and proper disposal of these particular types of patients. It is these groups which practitioners are generally inclined to neglect or dislike more than others.

TABLE 20.—*Duties Required of Interns*

	Yes	No
Attendance at staff meetings	647	36
Laboratory service	506	177
X-ray service	427	256
Attendance at necropsies	636	47
Outpatient service	463	220

TABLE 21.—*Staff Activities for Interns*

	Yes	No
Intern committees	646	37
Clinical pathologic conferences	572	111
Staff lectures	411	272
Ward rounds	643	40
Checking histories	652	31

TABLE 22.—*Opportunities for Interns*

	Yes	No
Otolaryngology	647	36
Anesthesia	625	58
Fractures	673	10
Venereal disease	583	100
Tuberculosis	471	212
Psychiatry	394	289
Dietetics	430	253
Pharmacy	247	436
Prenatal	458	225
Contagious	351	332
First aid	653	30
Neurology	584	99

PERFORMANCE OF NECROPSIES

Reference to table 23 shows the gradually increasing ability of the American hospital to obtain consent for necropsy study. The sixty-two approved internship hospitals which failed to make the grade of 15 per cent in 1932 will gradually be eliminated.

TABLE 23.—*Necropsy Performance in Approved Hospitals*

Percentage	1926	1928	1930	1932
Over 70	14	16	19	20
50 to 70	21	45	56	71
30 to 50	68	132	164	214
15 to 30	146	249	354	316
Under 15	329	189	71	62

RESIDENCIES

The attention of staff residency committees is directed to the revised Essentials in a Hospital Approved for Residencies in Specialties, first printed in the Hospital Number, March 25, 1933, and passed in substantially the same form by the House of Delegates of the American Medical Association at the Milwaukee session. Copies of these regulations are now available on request. In the present issue, a revised list of approved residency hospitals is published in different format. Each hospital is now listed under the specialty headings offered at that institution. The indicated bed capacity is the entire capacity of the hospital and does not represent the actual number of beds devoted to the particular specialty. Information about salaries has been deleted because of the unreliability of present figures and the present instability of salary schedules. This list will be revised regularly for publication in appropriate issues of THE JOURNAL and for distribution in reprint form.

PROGRESSION IN HOSPITAL EXPERIENCE

The increased interest recently displayed in certification of specialists has also focused attention on the mission which the hospital is to play in the training of these men. The Council has recognized the importance of a period of hospital training by revising considerably its regulations for residencies.

These regulations have the intention of ensuring a resident satisfactory clinical material, qualified teaching personnel, active management of patients and opportunities for investigation and research. The term "residency" is clearly defined as to prerequisites, duties and duration of service. Further, these new essentials clearly state that a "residency" in itself by no means qualifies a physician as a specialist.

The Council has always considered that graded study and experience are derivatives of the soundest pedagogic principles, and, in fact, bestows its approval of undergraduate and postgraduate teaching on that basis. The residency in a specialty also lends itself to this classification.

There are a number of teaching hospitals which have developed residency training so elaborately that the occupants of these positions come to be exceedingly well trained specialists. These institutions provide a

graded series of responsibilities corresponding to the growing ability and enlarging experience of the resident. These successive stages have been: (*a*) an internship of one or more years in an acceptable hospital, (*b*) a year as junior resident, (*c*) one or more years as assistant resident, (*d*) finally, as the culmination of his training, the position of chief resident.

There is no doubt that residencies need supervision, yet it would be unfortunate if these positions should have to be standardized too much. Obviously, a physician of the rank of resident is no professional parvenu—he may rightfully begin to consider himself as having advanced beyond the stage of spoonfeeding on the one hand or restrictions and safeguards such as are imposed against interns on the other. Without the privilege of assuming some responsibility, a residency is hardly worth the time.

Many believe that physicians intending to become specialists should spend several years in general practice in order to become familiar with all the symptoms of disease and, above all, to understand the pathologic and physiologic interrelationships between their special field and other systems of the body.

METHODS OF ACCORDING CREDIT FOR HOSPITAL SERVICE

The same interest in certification of specialists has led to the need for some central registry for recording each physician's entire educational experience. Such a registry already exists in the biographic department of the American Medical Association, the facilities of which are now being enlarged for the recording of all data relative to hospital service. At present the following classification is used:

1. An internship in an unapproved hospital is recorded as "hospital experience."

2. A residency in an unapproved hospital:

(*a*) If an internship has previously been served in an approved hospital, is rated "additional internship."

(*b*) If the internship was served in an unapproved hospital, it is recorded as "additional hospital experience."

3. Any internship or residency served in an approved hospital receives credit without question, unless the intern or residency committee declines to recommend the individual for this recognition.

4. Periods of residency longer than three years in duration are not eligible to approval unless definitely graded.

5. Additional years of rotating internship service in the same or different approved hospital, may be designated:

(*a*) A senior internship, if no grades above this service are offered.

(*b*) A junior residency, if it leads to a more advanced position.

DESCRIPTION OF MEDICAL COLLEGES

ALABAMA

University

UNIVERSITY OF ALABAMA SCHOOL OF MEDICINE, University, Ala.—Organized in 1859 at Mobile as the Medical College of Alabama. Classes graduated in 1861 and subsequent years excepting 1862 to 1868, inclusive. Reorganized in 1897 as the medical department of the University of Alabama. Present title assumed in 1907, when all property was transferred to the University of Alabama. In 1920 clinical teaching was suspended and the medical school was removed to the university campus near Tuscaloosa. Coeducational since 1920. Minimum entrance requirements are seventy semester hours of collegiate work. The course of study covers two years of thirty-six weeks each. The faculty includes 13 professors and 10 instructors, assistants, etc., a total of 23. The tuition fees are $251.50 for the first year and $271.50 the second year. Total registration for 1932-1933 was 107. The sixty-eighth session begins Sept. 6, 1933, and ends May 22, 1934. The Dean is Stuart Graves, M.D.

ARKANSAS

Little Rock

UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE, 300 West Markham Street.—Organized in 1879 as the Medical Department of Arkansas Industrial University. Present title in 1899. In 1911 the College of Physicians and Surgeons united with it and it became an integral part of the University of Arkansas. The first class was graduated in 1880. Clinical teaching was suspended in 1918 but resumed in 1923. Coeducational since organization. The faculty consists of 33 professors and 63 lecturers and assistants, total 96. The curriculum covers four years of nine months each. Entrance requirements are two years of collegiate work in addition to a four-year high school course. The fees for the four years, respectively, for residents of Arkansas are $192.50, $187.50, $182.50 and $182.50; nonresidents are charged $150 additional each year. The total registration for 1932-1933 was 197; graduates, 45. The fifty-fifth session begins Sept. 20, 1933, and ends June 5, 1934. The Dean is Frank Vinsonhaler, M.D.

CALIFORNIA

Berkeley-San Francisco

UNIVERSITY OF CALIFORNIA MEDICAL SCHOOL, University Campus, Berkeley; Third and Parnassus avenues, San Francisco.—Organized in 1862 as the Toland Medical College. The first class graduated in 1864. In 1872 it became the Medical Department of the University of California. In 1909, by legislative enactment, the College of Medicine of the University of Southern California, at Los Angeles, became a clinical department but was changed to a graduate school in 1914. In 1915 the Hahnemann Medical College of the Pacific was merged, and elective chairs in homeopathic materia medica, and therapeutics were provided. Coeducational since organization. Three years of collegiate work is required for admission. The work of the first year is given at Berkeley and that of the last three years at San Francisco. The faculty is composed of 133 professors and 246 associates and assistants, a total of 379. The course covers four years of eight months each, and an additional fifth year consisting of an internship in a hospital or of special work in a department of the medical school. Fees for the four years, respectively, for residents of California are $290, $225, $225 and $225; nonresidents are charged $300 additional each year. Total registration for 1932-1933 was 231; graduates, 54. The sixty-first session begins Aug. 21, 1933, and ends May 19, 1934. The Dean is Langley Porter, M.D., San Francisco.

Loma Linda-Los Angeles

COLLEGE OF MEDICAL EVANGELISTS.—Organized in 1909. The first class graduated in 1914. The laborataory departments are at Loma Linda, the clinical departments at Los Angeles. Coeducational since organization. The faculty is composed of 57 professors and 197 associates, assistants and instructors, a total of 254. The course covers a period of five years, including one year of internship. During the first and second years, the students are in school twelve months each year. This is accomplished by means of the "cooperative plan," the student spending alternate months in an approved hospital in practical lines of medical training. Sixty-four semester hours of collegiate work is required for admission. The total fees for the four years, respectively, are $385, $375, $480 and $440. The total registration for 1932-1933 was 389; graduates, 68. The twenty-fifth session begins July 2, 1933, and ends June 17, 1934. The Dean of the Loma Linda Division is E. H. Risley, M.D., and the Dean of the Los Angeles Division is Arthur E. Coyne, M.D.

Los Angeles

UNIVERSITY OF SOUTHERN CALIFORNIA SCHOOL OF MEDICINE, 3551 University Avenue.—Organized in 1885 as the University of Southern California College of Medicine. First class graduated in 1888. In 1908 it became the Medical Department of the University of California in Los Angeles. In 1909 the College of Physicians and Surgeons, established in 1904, became the Medical Department of the University of Southern California. Its activities were suspended in 1920; reorganized in May, 1928, under present title. The faculty consists of 121 professors and 64 instructors, assistants and others, a total of 185. A fifth intern year is required. Three years of collegiate work is required for admission. Coeducational since organization. Annual fees amount to $450. The total registration for 1932-1933 was 157; graduates, 7. The next session begins Sept. 20, 1933, and ends June 14, 1934. The Dean is Paul S. McKibben, Ph.D.

San Francisco

STANFORD UNIVERSITY SCHOOL OF MEDICINE, 2398 Sacramento Street, San Francisco.—Organized in 1908 when, by an agreement, the interests of Cooper Medical College were taken over. The first class was graduated in 1913. Coeducational since organization. The faculty consists of 99 professors and 133 lecturers, assistants and others, a total of 232. Three years of collegiate work is required for admission. The course covers four years of eight and one-half months each, plus a fifth year of intern work. The fees for the four years, respectively, are $387, $369, $360 and $360. The total registration for 1932-1933 was 191; graduates, 47. The twenty-fourth session begins Oct. 4, 1933, and ends June 13, 1934. The Dean is Loren Roscoe Chandler, M.D.

COLORADO

Denver

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE, 4200 East Ninth Avenue.—Organized in 1883. Classes were graduated in 1885 and in all subsequent years except 1898 and 1899. Denver and Gross College of Medicine was merged, Jan. 1, 1911. Coeducational since organization. The faculty is composed of 57 professors and 130 lecturers, instructors and assistants, a total of 187. The course covers four years of nine months each. The college also is urging a year's internship in a hospital. The entrance requirements beginning in 1934 are three years of collegiate work. The fees for residents of Colorado, for each of the four years are, respectively, $211, $231, $181 and $191. Nonresidents are charged $132 additional each year. The total registration for 1932-1933 was 220; graduates, 46. The fifty-second session begins Sept. 25, 1933, and ends June 11, 1934. The Dean is Maurice H. Rees, M.D.

CONNECTICUT

New Haven

YALE UNIVERSITY SCHOOL OF MEDICINE, 333 Cedar Street.—Chartered in 1810 as the Medical Institution of Yale College. Organized in 1812; instruction began in 1813; first class graduated in 1814. A new charter in 1879 changed the name to the Medical Department of Yale College. In 1884, the Connecticut Medical Society surrendered such authority as had been granted by the first charter. In 1887, Yale College became Yale University. Coeducational since 1916. The faculty consists of 117 professors and 158 lecturers and assistants, a total of 275. The requirements for admission are three years of collegiate work plus completion of courses in physics, inorganic chemistry, qualitative analysis, general biology, organic chemistry and physical chemistry or laboratory physics, all equivalent to the courses in these subjects in Yale University. The student also must have two years of French or German. The course covers four years of nine months each. The fees for the four years, respectively, are $505, $500, $500 and $520. The total registration for 1932-1933 was 197; graduates, 38. The one hundred and twenty-first session begins Sept. 25, 1933, and ends June 13, 1934. The Dean is Milton C. Winternitz, M.D.

DISTRICT OF COLUMBIA

Washington

GEORGETOWN UNIVERSITY SCHOOL OF MEDICINE, 3900 Reservoir Road, N.W.—Organized 1851. First class graduated in 1852. The faculty is composed of 101 professors, 110 instructors and assistants; total, 211. Three years of collegiate work is required for entrance. The course of study covers four terms of eight and one-half months each. The present fees for each of the four sessions, respectively, are $465, $460, $410 and $410. The total registration for 1932-1933 was 591; graduates, 132. The eighty-third session begins Sept. 21, 1933, and ends June 11, 1934. The Dean is William Gerry Morgan, M.D.

GEORGE WASHINGTON UNIVERSITY SCHOOL OF MEDICINE, 1335 H Street, N.W. — Organized in 1825 as the Medical Department of Columbian College. Also authorized to use the name National Medical College. Classes were graduated in 1826 and in all subsequent years except 1834 to 1838, and 1861 to 1863, inclusive. The original title was changed to Medical Department of Columbian University in 1873. In 1903 it absorbed the National University Medical Department. In 1904, by an act of Congress, the title of George Washington University was granted to the institution. Coeducational since 1884. The faculty is composed of 53 professors and 112 instructors, demonstrators and assistants, a total of 165. Two years of collegiate work is required for admission. The course covers four years of thirty-two weeks each. The fees for the four years, respectively, are $500 each year. The total registration for 1932-1933 was 292; graduates, 63. The one hundred and ninth session begins Sept. 20, 1933, and ends June 2, 1934. The Dean is Earl B. McKinley, M.D.

HOWARD UNIVERSITY COLLEGE OF MEDICINE, Fifth and W streets, N.W.—Chartered in 1867. Organized in 1869. The first class graduated in 1871. Coeducational since organization. Negro students compose a majority of those in attendance. The faculty comprises 30 professors and 63 lecturers and assistants, 93 in all. The admission requirements are at least two years of collegiate work, including physics, chemistry, botany and zoology, English and French or German. The course covers four years of thirty-three weeks each. The fees for each of the four sessions, respectively, are $269.50, $269.50, $259.50 and $266.50. Registration for 1932-1933 was 204; graduates, 42. The sixty-sixth session begins Oct. 2, 1933, and ends June 8, 1934. The Dean is Numa P. G. Adams, M.D.

GEORGIA

Atlanta

EMORY UNIVERSITY SCHOOL OF MEDICINE, 50 Armstrong Street and Druid Hills.—Organized in 1854 as the Atlanta School of Medicine. Classes graduated 1855 to 1861, when it suspended. Reorganized in 1865. A class graduated in 1865 and each subsequent year except 1874. In 1898 it merged with the Southern Medical College (organized in 1878), taking the name of Atlanta College of Physicians and Surgeons. In 1913 it merged with the Atlanta School of Medicine (organized in 1905), reassuming the name of Atlanta Medical College. Became the Medical Department of Emory University in 1915; assumed present title in 1917. Two years of collegiate work is required for admission. The faculty consists of 19 professors and 168 associates and assistants, a total of 187. The course of study is four years of thirty-two weeks each. The fees for each of the four years are $300. Total registration for 1932-1933 was 219; graduates, 52. The next session begins Sept. 27, 1933, and ends June 11, 1934. The Dean is Russell H. Oppenheimer, M.D.

Augusta

UNIVERSITY OF GEORGIA SCHOOL OF MEDICINE, University Place.—Organized in 1828 as the Medical Academy of Georgia, the name being changed to the Medical College of Georgia in 1829. Since 1873 it has been known as the Medical Department of the University of Georgia, the name being changed July 1, 1933, to University of Georgia School of Medicine. Property transferred to university in 1911. Classes were graduated in 1833 and all subsequent years except 1862 and 1863. Coeducation was begun in 1920. The faculty includes 41 professors and 26 assistants, 67 in all. Two years of collegiate work is required for admission. The course is four years of thirty-four weeks each. The fees for each of the four years are $185 for residents of Georgia, and $365 each year for nonresidents. The total registration for 1932-1933 was 158; graduates, 38. The one hundred and fifth session begins Sept. 25, 1933, and ends June 4, 1934. The Dean is William Lorenzo Moss, M.D.

ILLINOIS

Chicago

LOYOLA UNIVERSITY SCHOOL OF MEDICINE, 706 South Lincoln Street.—Organized in 1868 as the Bennett College of Eclectic Medicine and Surgery. Eclecticism dropped and title of Bennett Medical College assumed in 1909. First class graduated in 1870, and a class graduated each subsequent year. Absorbed the Illinois Medical College in 1910 and the Reliance Medical College in 1911. In 1910 it became by affiliation the School of Medicine of Loyola University; the university assumed full control in 1915. Took over by purchase the Chicago College of Medicine and Surgery in 1917. Coeducational. Two years of collegiate work is required for admission. The course of study is five years, including an internship in a hospital. The faculty is composed of 52 professors and 241 assistants, lecturers, instructors and others, a total of 293. The fees for each year are $336, $409, $332, and $298, respectively. The total enrolment for 1932-1933 was 450; graduates, 114. The next session begins Oct. 2, 1933, and ends June 16, 1934. The Dean is Louis D. Moorhead, M.D.

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL, 303 East Chicago Avenue.—Organized in 1859 as the Medical Department of Lind University. First class graduated in 1860. In 1864 it became independent as the Chicago Medical College. It united with Northwestern University in 1869 but retained the name of Chicago Medical College until 1891, when the present title was taken. Became an integral part of Northwestern University in 1905. Coeducational since 1926. The faculty comprises 127 professors and 283 lecturers and assistants, a total of 410. The requirements for admission are such as will admit to the College of Liberal Arts of Northwestern University, plus three years of collegiate work, including courses in physics, chemistry, biology and a foreign language. The course covers four years of eight months each and a fifth year spent in an approved hospital as an intern or in other practical work. The total fees are $365 each year. The total registration for 1932-1933 was 550; graduates, 124. The seventy-fifth session begins Oct. 3, 1933, and ends June 14, 1934. The Dean is Irving S. Cutter, M.D.

UNIVERSITY OF CHICAGO, RUSH MEDICAL COLLEGE, 1758 West Harrison Street.—Chartered in 1837; held first class in 1843. First class graduated in 1844. In 1887 the college became the medical department of Lake Forest University, retaining, however, its self-government. This relation was dissolved in April, 1898, and in the same month affiliation with the University of Chicago was established. Coeducational since 1898. Since that time the work of the first two years has been given on the University Quadrangles. In May, 1924, by a new contract, the University of Chicago took over the work of Rush Medical College as a department of the university. Thereafter only clinical work has been offered by Rush Medical College. Since 1914 the course has included a fifth year consisting of a hospital internship or of a fellowship in one of the departments. Three years of collegiate work is required for admission. The year is divided into four quarters of twelve weeks each; the completion of the work of three of these quarters gives credit for a college year. The faculty is composed of 121 professors, 149 associates, instructors and others, a total of 270. The fee for the third year is $380, and for the fourth, $400. Total registration for 1932-1933 was 332; graduates, 125. The eighty-ninth session begins Oct. 2, 1933, and ends June 12, 1934. The school is in session all year except the month of September. The Dean is Ernest E. Irons, M.D.

UNIVERSITY OF CHICAGO, THE SCHOOL OF MEDICINE OF THE DIVISION OF THE BIOLOGICAL SCIENCES, Fifty-Eighth Street and Ellis Avenue.—Organized in 1924. The work of the first two years of the medical course has been given on the Quadrangles since 1899 as Rush Medical College, and that of the third and fourth clinical years was added in 1924 with the organization of this medical school and the construction on the Quadrangles of the university hospitals and clinics. Coeducational. A fifth year, spent in successful internship in an approved hospital or in advanced work in some branch of medical science, is required for the degree of M.D. The faculty is composed of 98 professors, 132 associates, instructors and others, a total of 230. The requirements for admission are three years of collegiate work. The year is divided into four quarters of twelve weeks each; the completion of the work of three of these quarters gives credit for a college year. Students are admitted at the beginning of the autumn quarter. The tuition fees for each of the four years are $375. Total registration for 1932-1933 was 264; graduates, 18. The next session begins Oct. 2, 1933, and ends June 13, 1934. The Dean of Medical Students is B. C. H. Harvey, M.D.

UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE, 1853 West Polk Street.—Organized in 1882 as the College of Physicians and Surgeons. The first class graduated in 1883. It became the Medical Department of the University of Illinois by affiliation in 1897. Relationship with the university was canceled in June, 1912, and was restored in March, 1913, when the present title was assumed. Coeducational since 1898. Two years of collegiate work is required for admission. The curriculum

covers four years of thirty-two weeks each, and a year of internship in an approved hospital. The faculty is composed of 92 professors and 201 assistants and instructors, a total of 293. The tuition is $200 a year for students who are residents of Illinois; $300 a year for nonresident students. The total registration for 1932-1933 was 637; graduates, 118. The fifty-second session begins Oct. 2, 1933, and ends June 9, 1934. The Dean is David John Davis, M.D.

INDIANA

Bloomington-Indianapolis

INDIANA UNIVERSITY SCHOOL OF MEDICINE.—Organized in 1903 but did not give all the work of the first two years of the medical course until 1905. In 1907, by union with the State College of Physicians and Surgeons, the complete course in medicine was offered. In 1908 the Indiana Medical College, which was formed in 1905 by the merger of the Medical College of Indiana (organized in 1878), the Central College of Physicians and Surgeons (organized in 1879), and the Fort Wayne College of Medicine (organized in 1879) merged into it. The first class was graduated in 1908. Coeducational since organization. The faculty consists of 270 professors, lecturers, associates and assistants. Two years of collegiate work is required for admission. The work of the first year is given at Bloomington and the work of the next three years at Indianapolis. The fees for each of the four years, respectively, are $187, $186, $182 and $177 for residents of Indiana, and $75 additional for first year, and $175 additional for last three years, for nonresidents. The total registration for 1932-1933 was 459; graduates, 102. The next session begins Sept. 12, 1933, and ends June 11, 1934. The Dean at Bloomington is Burton D. Myers, M.D., and the Dean at Indianapolis is Willis Dew Gatch, M.D.

IOWA

Iowa City

STATE UNIVERSITY OF IOWA COLLEGE OF MEDICINE, University Campus.—Organized in 1869. First session began in 1870. First class graduated in 1871. Absorbed Drake University College of Medicine in 1913. Coeducational since 1870. The faculty is made up of 46 professors, 63 lecturers, demonstrators and assistants, a total of 109. Two years of collegiate work, including courses in physics, chemistry, biology, German and English, is required for admission. The course of study covers four years of thirty-four weeks each. The tuition fee is $192 each year for residents of Iowa and $456 for nonresidents. Total registration for 1932-1933 was 373; graduates, 93. The sixty-fourth session begins Sept. 25, 1933, and ends June 4, 1934. The Chairman of the Executive Committee is John Thomas McClintock, M.D.

KANSAS

Lawrence-Kansas City

UNIVERSITY OF KANSAS SCHOOL OF MEDICINE.—Organized in 1880. It offered only the first two years of the medical course until 1905, when it merged with the Kansas City (Mo.) Medical College, founded in 1869, the College of Physicians and Surgeons, founded in 1894, and the Medico-Chirurgical College, founded in 1897. Absorbed Kansas Medical College in 1913. First class graduated in 1906. The clinical courses are given at Kansas City. Coeducational since 1880. The faculty includes 52 professors and 124 instructors, assistants and others, a total of 176. The requirement for admission is two years of collegiate work. The course covers four years of nine months each. The total fees for residents of the state for each of the four years are, respectively, $147, $139, $117.50 and $120. For nonresidents the fees are $212, $204, $205, $207.50. The total registration for 1932-1933 was 288; graduates, 61. The fifty-fourth session begins Sept. 21, 1933, and ends June 11, 1934. The Dean is H. R. Wahl, M.D., Kansas City.

KENTUCKY

Louisville

UNIVERSITY OF LOUISVILLE SCHOOL OF MEDICINE, First and Chestnut streets.—Organized in 1837 as Louisville Medical Institute. The first class graduated in 1838, and a class graduated each subsequent year except 1863. In 1846 the name was changed to University of Louisville Medical Department. In 1907 it absorbed the Kentucky University Medical Department; in 1908, the Louisville Medical College, the Hospital College of Medicine and the Kentucky School of Medicine. In 1922 it changed its name to the University of Louisville School of Medicine. Coeducational since organization. Two years of collegiate work is required for admission. The faculty numbers 66 professors and 77 assistants, instructors and others, a total of 143. Course covers four years of thirty-two weeks each, exclusive of vacations and examinations. Fees for four years are, respectively, $365, $365, $370 and $380. Total registration for 1932-1933 was 348; graduates, 85. Next session begins Sept. 14, 1933, and ends June 2, 1934. The Dean is John Walker Moore, M.D.

LOUISIANA

New Orleans

LOUISIANA STATE UNIVERSITY MEDICAL CENTER, 1532 Tulane Avenue.—Organized January, 1931. Coeducational. First session October, 1931, with students of first and third years. Faculty comprises 32 professors and 117 assistant professors, instructors and assistants, a total of 149. Course covers four years of no less than 32 weeks each and one year of general rotation or laboratory internship in approved hospital. A minimum of two years' collegiate work is required for admission. Total fees, $92 each year for residents of Louisiana; additional tuition of $300 each year for nonresidents. Total registration for 1932-1933 was 171. The third session begins Sept. 20, 1933, and ends June 4, 1934. The Dean is Arthur Vidrine, M.D.

TULANE UNIVERSITY OF LOUISIANA SCHOOL OF MEDICINE, 1430 Tulane Avenue.—Organized in 1834 as the Medical College of Louisiana. Classes were graduated in 1835 and in all subsequent years except 1863-1865, inclusive. It was transferred to the Medical Department of the University of Louisiana in 1847, and became the Medical Department of the Tulane University of Louisiana in 1884. Present title in 1913. Coeducational since 1915. The faculty comprises 28 professors and 129 associate and assistant professors, instructors and assistants, a total of 157. The course covers four years of thirty-two weeks each. Two years of collegiate work is required for admission. Total fees for each of the four years, respectively, are $350, $340, $325 and $355. The total registration for 1932-1933 was 474; graduates, 103. The one hundredth session begins Sept. 22, 1933, and ends June 8, 1934. The Dean is Charles Cassedy Bass, M.D.

MARYLAND

Baltimore

JOHNS HOPKINS UNIVERSITY SCHOOL OF MEDICINE, Washington and Monument streets.—Organized in 1887. Offered preliminary course only until 1893. The first class graduated in 1897. Coeducational since organization. The faculty consists of 72 professors and 294 instructors, assistants and others, a total of 366. The requirements for admission demand that the applicant possess a collegiate degree and have a knowledge of French and German (two years each of college instruction), physics and biology, such as may be obtained from a year's course, and a two years' course in chemistry. The course extends over four years of eight and one-half months each. The total fees for each year are, respectively, $611, $610, $610 and $610. Total registration for 1932-1933 was 289; graduates, 72. The forty-first session begins Oct. 3, 1933, and ends June 12, 1934. The Dean is Alan M. Chesney, M.D.

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE AND COLLEGE OF PHYSICIANS AND SURGEONS, Lombard and Greene streets.—Organized in 1807 as the College of Medicine of Maryland. The first class graduated in 1810. In 1812 it became the University of Maryland School of Medicine. Baltimore Medical College was merged into it in 1913. In 1915 the College of Physicians and Surgeons of Baltimore was merged and the present name assumed. Coeducational since 1918. The faculty consists of 91 professors and 140 instructors and assistants, a total of 231. Two years of collegiate work is required for admission. The course covers four years of eight months each. The fees for the four years, respectively, are $385, $375, $375 and $390 for residents of the state; for nonresidents the fees are $150 additional each year. Total registration for 1932-1933 was 406; graduates, 84. The one hundred and twenty-sixth session begins Sept. 22, 1933, and ends June 6, 1934. The Dean is J. M. H. Rowland, M.D.

MASSACHUSETTS

Boston

BOSTON UNIVERSITY SCHOOL OF MEDICINE, 80 East Concord Street.—Organized in 1873 as a homeopathic institution. In 1874 the New England Female Medical College, founded in 1848, was merged into it. The first class was graduated in 1874. Became nonsectarian in 1918. Coeducational since organization. Three years of collegiate work is required for admission. The faculty includes 20 professors, 156 associates and others, a total of 176. The course covers four years. Total fees for each of the four years, respectively, are $421.50, $421.50, $396.50 and $406.50. Total registration for 1932-1933 was 242; graduates, 53. The sixty-first session begins Sept. 21, 1933, and ends June 11, 1934. The Dean is Alexander S. Begg, M.D.

HARVARD UNIVERSITY MEDICAL SCHOOL, 240 Longwood Avenue.—Organized in 1782. The first class graduated in 1788. It has a faculty of 110 professors and 370 instructors and assistants, a total of 480. Candidates for admission must present a college degree or two years of work leading to such a degree with standing in the upper third of the class. The college work must include a year of physics, biology, general chemistry, organic chemistry, and a reading knowledge of French or German. The total fee for each of the four years is $400, plus $5 the first year for matriculation. The total registration for 1932-1933 was 519; graduates, 129. The one hundred and fifty-first session begins Sept. 25, 1933, and ends June 21, 1934. The Dean is David L. Edsall, M.D.

TUFTS COLLEGE MEDICAL SCHOOL, 416 Huntington Avenue.—Organized in 1893 as the Medical Department of Tufts College. The first class graduated in 1894. Coeducational since 1894. It has a faculty of 64 professors and 228 assistants, lecturers and others, a total of 292. A minimum of two years of collegiate work is required for admission, but applicants with degrees are given preference. The course covers four years of eight months each. The total fees for each of the four years are $412, $407, $407 and $417. Total registration for 1932-1933 was 462; graduates, 117. The thirty-eighth session begins Sept. 27, 1933, and ends June 18, 1934. The Dean is A. Warren Stearns, M.D.

MICHIGAN

Ann Arbor

UNIVERSITY OF MICHIGAN MEDICAL SCHOOL.—Organized in 1850 as the University of Michigan Department of Medicine and Surgery. The first class graduated in 1851. Present title assumed in 1915. Coeducational since organization. It has a faculty of 26 professors, 13 associate professors, 28 assistant professors, assistants, instructors and lecturers, 152; a total of 219. The entrance requirements are ninety semester hours, including courses in chemistry, physics and biology, with laboratory work,

and two years of French or German, and one year of the other, one year of which must be of college grade. The curriculum covers four years of nine months each. The total fees for Michigan students are $200, $205, $205 and $202.50 for each of the four years, respectively, plus a matriculation fee of $10; for nonresidents, $100 a year additional. The matriculation fee for nonresidents is $25. The total registration for 1932-1933 was 485; graduates, 132. The eighty-fourth session begins Sept. 25, 1933, and ends June 8, 1934. The Secretary is Arthur C. Curtis, M.D.

Detroit

DETROIT COLLEGE OF MEDICINE AND SURGERY, 1516 St. Antoine Street.—Organized as the Detroit College of Medicine in 1885 by consolidation of Detroit Medical College, organized in 1868, and the Michigan College of Medicine, organized in 1880. Reorganized with present title in 1913. The first class graduated in 1886. In 1918 it became a municipal institution under the control of the Detroit Board of Education. Coeducational since 1917. Entrance requirement is an academic degree or 90 semester hours of academic credit with "combined degree" guaranteed by school of arts and sciences. The faculty consists of 33 professors, 101 lecturers and others, a total of 134. The course covers four years of nine months each and a fifth hospital intern year. The total fees for each of the first four years are, for Detroit residents, $275; for nonresidents who reside in Michigan, $375, and for nonresidents from outside the state, $400. For the fifth or intern year the resident student fee is $75, the nonresident fee is $110. The total registration for 1932-1933 was 324; graduates, 65. The forty-ninth session begins Sept. 28, 1933, and ends June 22, 1934. The Dean is W. H. MacCracken, M.D.

MINNESOTA

Minneapolis

UNIVERSITY OF MINNESOTA MEDICAL SCHOOL.—Organized in 1883 as the University of Minnesota College of Medicine and Surgery, reorganized in 1888 by absorption of St. Paul Medical College and Minnesota Hospital College. The first class graduated in 1889. In 1908 the Minneapolis College of Physicians and Surgeons, organized in 1883, was merged. In 1909 the Homeopathic College of Medicine and Surgery was merged. Present title in 1913. Coeducational since organization. The faculty includes 87 professors and 216 instructors, a total of 303. The curriculum covers four years of nine months each, and a year's internship in an approved hospital. The school is operated on the four-quarter plan. The entrance requirements are two years of university work, which must include six semester credits of rhetoric, eight semester credits of physics; thirteen credits of general chemistry, qualitative and quantitative analysis and organic chemistry, eight credits of zoology, and a reading knowledge of scientific German, with a "C" average in all subjects and in the sciences. Students are required to meet the requirements for a degree of B.S. or B.A. before receiving the degree of Bachelor of Medicine (M.B.) which is granted at the end of the four-year course. The M.D. degree is conferred after a year of intern work, of advanced laboratory work, or of public health work has been completed. Students are graduated at the end of any quarter in which work is completed and examinations passed. Most students graduate in March or June. Total fees are $243 for residents and $318 for nonresidents, each year of three quarters. The total registration for 1932-1933 was 470; graduates, 125. The forty-fifth session begins Oct. 2, 1933, and ends June 15, 1934. The Dean is Elias P. Lyon, M.D.; Dean of Medical Sciences, Richard E. Scammon, Ph.D.

MISSOURI

Columbia

UNIVERSITY OF MISSOURI SCHOOL OF MEDICINE.—Organized at St. Louis in 1845; was discontinued in 1855 but was reorganized at Columbia in 1872. Teaching of the clinical years was suspended in 1909 Coeducational since 1872. The faculty includes 13 professors and and 14 assistant professors, lecturers and others, a total of 27. The entrance requirements are 90 semester hours of collegiate work, including French or German, 8 hours; general zoology, 8 hours; physics, 8 hours; inorganic chemistry, 8 hours; organic chemistry, 5 hours, and general bacteriology, 3 hours. Total fees for the first year are $170; for the second, $150. Nonresidents of the state pay $25 per semester extra. Total registration for 1932-1933 was 86. The next session begins Sept. 11, 1933, and ends June 6, 1934. The Dean is Dudley S. Conley, M.D.

St. Louis

ST. LOUIS UNIVERSITY SCHOOL OF MEDICINE, 1402 South Grand Boulevard.—Organized in 1901 as the Marion-Sims-Beaumont Medical College by union of Marion-Sims Medical College, organized in 1890, and Beaumont Hospital Medical College, organized in 1886. First class graduated in 1902. It became the Medical School of St. Louis University in 1903. The faculty is composed of 80 professors and 224 instructors and assistants, a total of 304. The requirement for admission is a qualitative standard of two years of collegiate study in the customary subjects, but applicants presenting meritorius credit in excess of the two year minimum are accepted by preference. The curriculum covers four years of thirty-two weeks each. The summer is optional and offers courses academically equivalent to those in the regular session. The total fees for the four years, respectively, are $395, $390, $390 and $425. The total registration for 1932-1933 was 532; graduates, 115. The next session begins Sept. 20, 1933, and ends June 1, 1934. The Dean is Alphonse M. Schwitalla, S.J., Ph.D.

WASHINGTON UNIVERSITY SCHOOL OF MEDICINE, Kingshighway and Euclid Avenue.—Organized in 1842 as the Medical Department of St. Louis University. The first class graduated in 1843. In 1855 it was chartered as an independent institution under the name of St. Louis Medical College. In 1891 it became the Medical Department of Washington University. In 1899 it absorbed the Missouri Medical College. Coeducational since 1918. The faculty comprises 104 professors and 193 lecturers, instructors and others, a total of 297. Four years of collegiate work is required for admission, including courses in English, physics, chemistry and biology, and a reading knowledge of German or French. The course is four years of eight months each. The total fees for the four years are, respectively, $424, $419, $419 and $424. The total registration for 1932-1933 was 337; graduates, 93. The next session begins Sept. 28, 1933, and ends June 12, 1934. The Dean is W. McKim Marriott, M.D.

NEBRASKA

Omaha

CREIGHTON UNIVERSITY SCHOOL OF MEDICINE, 306 North Fourteenth Street.—Organized in 1892 as the John A. Creighton Medical College. The first class graduated in 1893. Present title in 1921. Coeducational since organization. It has a faculty of 66 professors and 72 instructors, lecturers and assistants, a total of 138. Two years of collegiate work is required for admission. The curriculum covers four years of eight months each. The total fees each year for the four years are, respectively, $393.50, $393.50, $348.50 and $346. Total registration for 1932-1933 was 315; graduates, 72. The fifty-second session begins Sept. 21, 1933, and ends June 7, 1934. The Acting Dean is John J. McInerny, S. J.

UNIVERSITY OF NEBRASKA COLLEGE OF MEDICINE, Forty-Second Street and Dewey Avenue.—Organized in 1881 as the Omaha Medical College. The first class graduated in 1882. It became the Medical Department of Omaha University in 1891. In 1902 it affiliated with the University of Nebraska, with the present title. The instruction of the first two years was given at Lincoln and of the last two at Omaha until 1913, when the work of all four years was transferred to Omaha. Coeducational since 1882. The faculty is composed of 69 professors and 53 lecturers and instructors, a total of 122. Sixty-five semester hours of collegiate work is required for admission, including courses in physics, chemistry and zoology. The fees for each of the four years, respectively, are $217, $212, $212 and $212. Total registration for 1932-1933 was 338; graduates, 74. The next session begins Sept. 18, 1933, and ends June 4, 1934. The Dean is C. W. M. Poynter, M.D.

NEW HAMPSHIRE

Hanover

DARTMOUTH MEDICAL SCHOOL.—Organized as New Hampshire Medical Institute in 1797. The first class graduated in 1798. It is under the control of the trustees of Dartmouth College. Clinical teaching was discontinued in 1914. The faculty consists of 15 professors and 10 instructors, a total of 25. Three years of collegiate work is required for admission. The course covers nine calendar months in each year, or eight months of actual teaching. Candidates for the A.B. degree in Dartmouth College may substitute the work of the first year in medicine for that of the senior year in the academic department. The fees for the first year are $410 and $400 for the second year. The total registration for 1932-1933 was 38. The next session begins Sept. 21, 1933, and ends June 19, 1934. The Dean is John P. Bowler, M.D.

NEW YORK

Albany

ALBANY MEDICAL COLLEGE, 47 New Scotland Avenue.—Organized in 1838. The first class graduated in 1839. It became the Medical Department of Union University in 1873. In 1915, Union University assumed educational control. Coeducational since 1915. The faculty is composed of 26 professors and 100 instructors, assistants and others, a total of 126. Three years of collegiate work, including college courses in physics, chemistry (including inorganic, organic and analytic), biology, English, and a modern foreign language, is required for admission. The curriculum covers four years of eight months each. The total fees for the four years, respectively, are $445, $420, $405 and $405. The total registration for 1932-1933 was 121; graduates, 30. The one hundred and third session begins Sept. 25, 1933, and ends June 11, 1934. The Dean is Thomas Ordway, M.D.

Brooklyn

LONG ISLAND COLLEGE OF MEDICINE, 350 Henry Street.—Organized in 1858 as the Long Island College Hospital. The first class graduated in 1860 and the last class in 1930. Reorganized with a new charter in 1930 as the present institution. The first class graduated in 1931. Coeducational. It has a faculty of 117 professors and 160 assistants, instructors and others, a total of 277. Seventy-two semester hours of collegiate work, including college courses in physics, chemistry and biology, is required for admission. The course covers four years of eight months each. The total fees for each of the four years are, respectively, $535, $545, $530 and $560. Total registration for 1932-1933 was 424; graduates, 99. The third session begins Oct. 2, 1933, and ends June 5, 1934. The Dean is Adam M. Miller, A.M.

Buffalo

UNIVERSITY OF BUFFALO SCHOOL OF MEDICINE, 24 High Street.—Organized in 1846. The first class graduated in 1847. It absorbed the Medical Department of Niagara University in 1898. Coeducational since organization. The faculty is composed of 73 professors and 156 associates, assistants and others, a total of 229. Two years of collegiate work, including college courses in physics, chemistry, biology, English and French or German, is required for admission. The course covers four years of eight months each. The total fees for each of the four years are, respectively, $527, $522, $517 and $527. Total registration

for 1932-1933 was 282; graduates, 64. The eighty-eighth session begins Oct. 2, 1933, and ends June 13, 1934. The Dean is Edward W. Koch, M.D.

New York

COLUMBIA UNIVERSITY COLLEGE OF PHYSICIANS AND SURGEONS, 630 West One Hundred and Sixty-Eighth Street.—The medical faculty of Columbia College, then known as King's College, was organized in 1767. Instruction was interrupted by the War of the Revolution. The faculty was reestablished in 1792 and merged in 1814 with the College of Physicians and Surgeons, which had received an independent charter in 1807. In 1860 the College of Physicians and Surgeons became the Medical Department of Columbia College. This merger became permanent by legislative enactment in 1891. Columbia College became Columbia University in 1896. The Medical School has been coeducational since 1917. The faculty is composed of 191 professors and 502 instructors, demonstrators and others, a total of 693. Three years of collegiate work including courses in physics, chemistry, biology and English constitutes the minimum requirement for admission. The work covers four years of eight months each. The total fees for the four years, respectively, are $540, $525, $525 and $545. Total registration for 1932-1933 was 413; graduates, 90. The one hundred and twenty-sixth session begins Sept. 27, 1933, and ends June 5, 1934. The Dean is Willard C. Rappleye, M.D.

CORNELL UNIVERSITY MEDICAL COLLEGE, York Avenue and Sixty-Ninth Street.—Organized in 1898. The work of the first year may be taken either in Ithaca or in New York. Coeducational since organization. The faculty is composed of 118 professors and 267 assistants, lecturers, instructors and others, a total of 385. All candidates for admission must be graduates of approved colleges or scientific schools or seniors of approved colleges that will permit them to substitute the first year of this medical school for the fourth year of their college course and will confer on them the bachelor degree on the completion of the first year's work. The candidate must also have a knowledge of physics, chemistry, biology, English and a modern language. The fees for each of the four years are, respectively, $510, $500, $510 and $525. Total registration for 1932-1933 was 253 (including Ithaca students); graduates, 55. The thirty-sixth session begins Sept. 25, 1933, and ends June 7, 1934. The Director is G. Canby Robinson, M.D.

NEW YORK HOMEOPATHIC MEDICAL COLLEGE AND FLOWER HOSPITAL, 450 East Sixty-Fourth Street.—Organized in 1858. Incorporated in 1860 as the Homeopathic Medical College of the State of New York. The title New York Homeopathic Medical College was assumed in 1869; present title in 1908. The first class graduated in 1861. Coeducational since 1919. Two years of collegiate work is required for admission. The course covers four years of eight months each. It has a faculty of 53 professors and associate professors, 18 assistant professors and 98 lecturers and assistants, a total of 169. The total fees for the four years are, respectively, $540, $530, $530 and $560. Total registration for 1932-1933 was 308; graduates, 68. The seventy-fourth session begins Sept. 18, 1933, and ends June 5, 1934. The Dean is Claude A. Burrett, M.D.

NEW YORK UNIVERSITY, UNIVERSITY AND BELLEVUE HOSPITAL MEDICAL COLLEGE, 477 First Avenue.—Organized in 1898 by the union of the New York University Medical College, organized in 1841, and the Bellevue Hospital Medical College, organized in 1861. It is the Medical Department of New York University. First class graduated in 1899. Coeducational since 1919. The faculty is composed of 123 professors, associate, assistant, clinical and assistant clinical professors, and 251 lecturers, instructors and others, a total of 374. The course covers four years. Entrance requirements are that all candidates must be graduates of approved colleges or scientific schools, or seniors in good standing in approved colleges or scientific schools on condition that their faculty will permit them to substitute the first year in University and Bellevue Hospital Medical College for the fourth year of their college course and will confer on them the bachelor degree on the satisfactory completion of the year's work. The fees for the four years, respectively, are $552, $543, $524 and $565. Total registration for 1932-1933 was 511; graduates, 122. The next session begins Sept. 13, 1933, and ends June 13, 1934. The Dean is John Wyckoff, M.D.

Rochester

UNIVERSITY OF ROCHESTER SCHOOL OF MEDICINE, Elmwood Avenue and Crittenden Boulevard.—Organized in 1925 as the Medical Department of the University of Rochester. Coeducational since organization. The faculty is composed of 57 professors, 142 lecturers, assistants, instructors and others, a total of 199. The work embraces a graded course of four years of nine months each. Three years of collegiate work is required for admission. The total fees for each year are $400. The total registration for 1932-1933 was 174; graduates, 37. The ninth session begins Sept. 18, 1933, and ends June 16, 1934. The Dean is George Hoyt Whipple, M.D.

Syracuse

SYRACUSE UNIVERSITY COLLEGE OF MEDICINE, 309-311 South McBride Street.—Organized in 1872, when the Geneva Medical College, chartered in 1834, was removed to Syracuse, under the title "The College of Physicians and Surgeons of Syracuse University." Present title assumed in 1875, when a compulsory three-year graded course was established. The first class graduated in 1873 and a class graduated each subsequent year. In 1889 the amalgamation with the university was made complete. Course extended to four years in 1896. Coeducational since organization. The faculty is composed of 37 professors and 154 associate and assistant professors, lecturers and instructors, a total of 191. Two years of a recognized college course is required for admission. The course covers four years of thirty-four weeks each. The fee for each of the first three years is $500; for the fourth year, $510. The total enrolment for 1932-1933 was 198; graduates, 40. The sixty-third session begins Sept. 28, 1933, and ends June 4, 1934. The Dean is H. G. Weiskotten, M.D.

NORTH CAROLINA

Chapel Hill

UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE.—Organized in 1890. Until 1902 this school gave only the work of the first two years, when the course was extended to four years by the establishment of a department at Raleigh. The first class graduated in 1903. A class was graduated each subsequent year, including 1910, when the clinical department at Raleigh was discontinued. Coeducational since 1914. Two years of collegiate work is required for admission. The faculty is composed of 9 professors and 3 instructors, a total of 12. The fees for each year are $250 for residents; nonresidents, an additional fee of $100. The total registration for 1932-1933 was 67. The forty-eighth session begins Sept. 22, 1933, and ends June 7, 1934. The Dean is I. H. Manning, M.D.

Durham

DUKE UNIVERSITY SCHOOL OF MEDICINE.—Organized in 1925. The first class was admitted, Oct. 1, 1930. Coeducational. The faculty is composed of 9 professors and 60 associate and assistant professors, lecturers, instructors and assistants, a total of 69. The entrance requirements are seventy hours of collegiate work, including two years each of chemistry and English, and one year each of biology, physics and mathematics. The academic year consists of four quarters of eleven weeks each. Students may either study four quarters each year, and if satisfactory will receive the M.D. certificate after three calendar years, or three quarters in each year, and if satisfactory be graduated after four calendar years. The object of utilizing the summer quarters is to provide more time for longer postgraduate intern training. Duke University will grant the degree of Bachelor of Science to students who have completed satisfactorily seventy semester hours in Duke University or some other approved university, six quarters in the Duke University School of Medicine, creditable extra work and have written an acceptable thesis. Students are urged to spend three years in hospital or laboratory work after graduation and must give assurance satisfactory to the executive committee that they will spend at least two years. The fees are $450 for each year of three quarters. Total registration for 1932-1933 was 165; graduates, 15. The fourth session begins Oct. 2, 1933, and ends Sept. 1, 1934. The Dean is Wilburt C. Davison, M.D.

Wake Forest

WAKE FOREST COLLEGE SCHOOL OF MEDICINE.—Organized in 1902. Coeducational. The faculty numbers 6 professors and 8 assistants, a total of 14. Sixty semester hours of collegiate work is required for admission. Only the first two years of the medical course is offered. After the completion of freshman and sophomore college work and two years of medicine, a certificate will be given. The B.S. degree in medicine will be given only after completion of three years of college work and two years of medicine. Each annual course extends over nine months. The fees for the first year are $220 and $225 for the second year. The total registration for 1932-1933 was 59. The thirty-second session begins Sept. 12, 1933, and ends May 31, 1934. The Dean is Thurman D. Kitchin, M.D.

NORTH DAKOTA

Grand Forks

UNIVERSITY OF NORTH DAKOTA SCHOOL OF MEDICINE.—Organized in 1905. Offers only the first two years of the medical course. Coeducational since organization. Two years' work in a college of liberal arts is required for admission. The faculty consists of 5 professors and 8 instructors, a total of 13. The fees are $75 each year for resident students and $165 for nonresidents. The total registration for 1932-1933 was 58. The twenty-eighth session begins Sept. 19, 1933, and ends June 12, 1934. The Dean is H. E. French, M.D.

OHIO

Cincinnati

UNIVERSITY OF CINCINNATI COLLEGE OF MEDICINE, Eden and Bethesda avenues.—Organized in 1909 by the union of the Medical College of Ohio (founded in 1819) with the Miami Medical College (founded in 1852). The Medical College of Ohio became the Medical Department of the University of Cincinnati in 1896. Under a similar agreement, March 2, 1909, the Miami Medical College also merged into the University, when the title of Ohio-Miami Medical College of the University of Cincinnati was taken. Present title assumed in 1915. Coeducational since organization. Commencing in 1934, candidates for admission to the freshman class must present three years of college preparation of not less than ninety hours (completed in a college of satisfactory standing). The faculty consists of 117 professors and 158 associates, assistants, etc., a total of 275. The course covers four years of eight months each. A year's internship in an approved hospital is also required. The total fees for the four years are, respectively, $360, $370, $360 and $380, and if not legal citizens of Cincinnati, $50 additional. The total registration for 1932-1933 was 313; graduates, 67. The next session begins Sept. 25, 1933 and ends June 16, 1934. The Dean is Arthur C. Bachmeyer, M.D.

Cleveland

WESTERN RESERVE UNIVERSITY SCHOOL OF MEDICINE, 2109 Adelbert Road.—Organized in 1843 as the Cleveland Medical College. The first class graduated in 1844. It assumed the present title in 1881. In 1910 the Cleveland College of Physicians and Surgeons was merged. Coeducational since 1919. The faculty includes 64 professors and 174 lecturers,

assistants and others, a total of 238. The curriculum covers three years of eight and one-half months each and one year of nine months. Graduation from an approved college or scientific school or equivalent, following completion of a course of at least three collegiate years, is required for admission. The total fees for each of the four years are, respectively, $442, $435, $415 and $425. The total registration for 1932-1933 was 269; graduates, 61. The ninety-first session begins Sept. 14, 1933, and ends June 13, 1934. The Dean is Torald Sollmann, M.D.

Columbus

OHIO STATE UNIVERSITY COLLEGE OF MEDICINE, Neil and Eleventh avenues.—Organized in 1907 as the Starling-Ohio Medical College by the union of Starling Medical College (organized in 1847 by charter granted by the State Legislature changing the name from Willoughby Medical College, which was chartered March 3, 1834) with the Ohio Medical University (organized 1890). In 1914 it became an integral part of the Ohio State University with its present title. Coeducational since organization. The faculty consists of 50 professors and assistant professors, 79 lecturers, instructors, demonstrators and others, a total of 129. Two years of collegiate work is required for admission. The course covers four years of thirty-four weeks each. Tuition fees are $196, $186, $186 and $196 each year, respectively, for residents of Ohio, and $150 additional for nonresidents. The total registration for 1932-1933 was 365; graduates, 86. The next session begins Oct. 3, 1933, and ends June 13, 1934. The Dean is J. H. J. Upham, M.D.

OKLAHOMA

Oklahoma City

UNIVERSITY OF OKLAHOMA SCHOOL OF MEDICINE.—Organized in 1900. Gave only the first two years of the medical course at Norman until 1910, when a clinical department was established at Oklahoma City. The first class graduated in 1911. Coeducational since organization. Since September, 1928, the entire course has been given at Oklahoma City. It has a faculty of 28 professors, 44 associate and assistant professors and 64 instructors, a total of 136. Two years of collegiate work is required for admission. The course covers four years of nine months each. An optional course of six years is offered for the degree of B.S. and M.D. The total fees for the four years are, respectively, $128, $95.50, $33 and $25.50. For students residing outside the state of Oklahoma there is an additional fee of $200 a year. The total registration for 1932-1933 was 255; graduates, 56. The thirty-third session begins Sept. 18, 1933, and ends June 4, 1934. The Dean is Lewis Jefferson Moorman, M.D.

OREGON

Portland

UNIVERSITY OF OREGON MEDICAL SCHOOL, Marquam Hill.—Organized in 1887. The first class graduated in 1888, and a class graduated each subsequent year except 1898. The Willamette University Medical Department was merged in 1913. Coeducational since organization. It has a faculty of 52 professors and 134 lecturers, assistants and others, a total of 186. Entrance requirements are three years of collegiate work or its equivalent. The course is four years of thirty-three weeks each. The total fees for the four years are, respectively, $260, $255, $250 and $250 for residents of Oregon, and $60 a year additional for nonresidents. The total registration for 1932-1933 was 235; graduates, 51. The forty-seventh session begins Oct. 3, 1933 and ends June 11, 1934. The Dean is Richard B. Dillehunt, M.D.

PENNSYLVANIA

Philadelphia

HAHNEMANN MEDICAL COLLEGE AND HOSPITAL OF PHILADELPHIA, 235 North Fifteenth Street.—Organized in 1848 as the Homeopathic Medical College of Pennsylvania. In 1869 it united with the Hahnemann Medical College of Philadelphia, taking the latter title. Assumed present title in 1885. The first class graduated in 1849. Entrance requirements are a completed course in a standard secondary school and in addition two years devoted to a college course including English and either French, German or Spanish, physics, chemistry and biology. It has a faculty of 76 professors and 125 lecturers, instructors and others, in all, 201. The work covers four years of eight and one-half months each. Fees for each of the four years are, respectively, $455, $427, $427 and $450. The total registration for 1932-1933 was 469; graduates, 108. The eighty-sixth session begins Oct. 2, 1933, and ends June 7, 1934. The Dean is William A. Pearson, M.D.

JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA, 1019 Walnut Street.—Organized in 1825 as the Medical Department of Jefferson College, Canonsburg, Pa. It was chartered with its present title in 1838. Classes have been graduated annually since 1826. In 1838 a separate university charter was granted without change of title, since which time it has continued under the direction of its own board of trustees. It has a faculty 63 professors, associate and assistant professors and 174 associates, lecturers, demonstrators and instructors, a total of 237. Entrance requirements are a completed standard four-year high school college preparatory course, or the equivalent, and in addition four years of work leading to a degree in an approved college of arts and science, including specified courses in physics, general and organic chemistry and biology, with laboratory work in each subject. The course of study covers four years of eight and one-half months each. The total fees for the four years are, respectively, $445, $430, $425 and $425. The total registration for 1932-1933 was 572; graduates, 140. The one hundred and ninth session begins Sept. 20, 1933, and ends June 1, 1934. The Dean is Ross V. Patterson, M.D.

TEMPLE UNIVERSITY SCHOOL OF MEDICINE, Broad and Ontario streets.—Organized in 1901. The first class graduated in 1904. Coeducational since organization. The faculty numbers 28 professors and 204 associates, assistants and others, a total of 232. Three years of collegiate work is required for admission. The fees for each of the four years, respectively, are $485, $455, $435 and $455. The total registration for 1932-1933 was 464, graduates, 112. The thirty-second session begins Sept. 27, 1933 and ends June 14, 1934. The Dean is William N. Parkinson, M.D.

UNIVERSITY OF PENNSYLVANIA SCHOOL OF MEDICINE, Thirty-Sixth and Pine streets.—Organized in 1765. Classes were graduated in 1768 and in all subsequent years except 1772 and 1775-1779, inclusive. The original title was the Department of Medicine, College of Philadelphia. The present title was adopted in 1909. It granted the first medical diploma issued in America. In 1916 it took over the Medico-Chirurgical College of Philadelphia to develop it as a graduate school. Coeducational since 1914. The faculty consists of 83 professors, associate and assistant professors, and 299 lecturers, associates, instructors and others, a total of 382. Three years of collegiate work is required for admission, including courses in physics, biology or zoology, chemistry, including general inorganic, organic and analytic, English and French or German. The course covers four years of thirty-three weeks each. The tuition fee is $500 each year, with a deposit fee of $15, a student health fee of $10 and a matriculation fee of $5. Total registration for 1932-1933 was 522; graduates, 138. The one hundred and sixty-eighth session begins Sept. 25, 1933, and ends June 20, 1934. The Dean is William Pepper, M.D.

WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA, Henry Avenue and Abbottsford Road, East Falls.—Organized in 1850. Classes were graduated in 1852 and in all subsequent years except 1862. It has a faculty of 31 professors and 65 assistants, lecturers and others, in all, 96. Entrance requirements are a completed course in a standard secondary school, and in addition two years of collegiate work, including courses in physics, chemistry, biology, English and French or German. The curriculum covers four years of eight months each. Total fees for each of the four years are, respectively, $439, $433, $433 and $455. The total registration for 1932-1933 was 136; graduates, 27. The eighty-fourth session begins Sept. 20, 1933, and ends June 6, 1934. The Dean is Martha Tracy, M.D.

Pittsburgh

UNIVERSITY OF PITTSBURGH SCHOOL OF MEDICINE, Bigelow Boulevard.—Organized in 1886 as the Western Pennsylvania Medical College and in 1908 became an integral part of the University of Pittsburgh, removing to the university campus in 1910. The first class graduated in 1887. Coeducational since 1899. The faculty is composed of 22 professors and 212 associates, assistants and others, 234 in all. Entrance requirements are two years of collegiate work, including English, chemistry (inorganic and organic), physics and biology. The course of study is four years of eight and one-half months each. The total fees for the four years, respectively, are $415, $400, $400 and $410. The total registration for 1932-1933 was 262; graduates, 62. The forty-eighth session begins Sept. 25, 1933, and ends June 6, 1934. The Dean is R. R. Huggins, M.D.

SOUTH CAROLINA

Charleston

MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA, 16 Lucas Street.—Organized in 1823 as the Medical College of South Carolina. The first class graduated in 1825. In 1832 a medical college bearing the present title was chartered and the two schools continued as separate institutions until they were merged in 1838. Classes were graduated in all years except 1862 to 1865, inclusive. In 1913, by legislative enactment, it became a state institution. Coeducational from 1895 to 1912, when privileges for women were withdrawn, being restored in 1917. It has a faculty of 38 professors and 42 lecturers, instructors and others, a total of 80. The course covers four years of eight months each. The minimum requirements for admission are graduation from an approved four-year high school and satisfactory completion of two years of collegiate work. The total fees are $285, $285, $290 and $290 each year, respectively. Fees for nonresidents of state, $435, $435, $440, $440. Total enrolment for 1932-1933 was 150; graduates, 35. The one hundred and fourth session begins Sept. 28, 1933 and ends June 7, 1934. The Dean is Robert Wilson, M.D.

SOUTH DAKOTA

Vermilion

UNIVERSITY OF SOUTH DAKOTA SCHOOL OF MEDICINE.—Organized in 1907. Coeducational since organization. Offers only the first two years of the medical course. Two years' work in a college of liberal arts is required for admission. The faculty numbers 10. The fees are $100 each year for residents and $200 for nonresidents. The total registration for 1932-1933 was 45. The twenty-seventh session begins Sept. 20, 1933, and ends June 11, 1934. The administrative head is J. C. Ohlmacher, M.D.

TENNESSEE

Memphis

UNIVERSITY OF TENNESSEE COLLEGE OF MEDICINE, 847 Union Avenue.—Organized in 1876 at Nashville as Nashville Medical College. First class graduated 1877, and a class graduated each subsequent year. Became Medical Department of University of Tennessee in 1879. In 1909 it united with the Medical Department of the University of Nashville to form the joint Medical Department of the Universities of Nashville and Tennessee. This union was dissolved in 1911. The trustees of the University of Nashville by formal action of that board named the University of Tennessee College of Medicine as its legal successor.

In 1911 it moved to Memphis, where it united with the College of Physicians and Surgeons. The Memphis Hospital Medical College was merged in 1913. Lincoln Memorial University Medical Department was merged in 1914. Coeducational since 1911. The faculty includes 84 professors and 118 assistants, instructors and others, a total of 202. Entrance requirements are a high school education and ninety quarter hours of collegiate work. Students taking the two-year premedical course in Knoxville may secure the B.S. and M.D. degrees. The fees are: for the first quarter, $133.50; second to sixth quarters, $113.50 each; seventh to ninth quarters, $108.50 each; tenth to twelfth quarters, $118.50 each. For residents of the state the charge is reduced $50 each quarter. Total registration for 1932-1933 was 405; graduates, 105. During the academic year 1933-1934 the quarters begin July 12, Sept. 28, Jan. 2 and March 22, and end Sept. 27, Dec. 16, March 21 and June 9. The Dean is O. W. Hyman, Ph.D.

Nashville

MEHARRY MEDICAL COLLEGE, Eighteenth Avenue North and Heffernan Street.—This school was organized in 1876 as the Meharry Medical Department of Central Tennessee College, which became Walden University in 1900. First class graduated in 1877. Obtained new charter independent of Walden University in 1915. Coeducational since 1876. The faculty is made up of 25 professors and 34 instructors, demonstrators, lecturers and others, 59 in all. Two years' work in a college of liberal arts is required for admission. The curriculum covers four years of thirty-two weeks each. Tuition fees are, respectively, $250, $250, $250 and $260 each year. Total registration for 1932-1933 was 171; graduates, 36. The fifty-eighth session begins Oct. 2, 1933, and ends May 31, 1934. The President is John J. Mullowney, M.D.

VANDERBILT UNIVERSITY SCHOOL OF MEDICINE, Twenty-First and Edgehill.—This school was founded in 1874. The first class graduated in 1875. Coeducational since September, 1925. The faculty consists of 81 professors and 122 lecturers, instructors, assistants and others, a total of 203. For matriculation, students must be seniors in absentia, who will receive the bachelor degree from their college after having completed successfully at least one year of work in the school of medicine. The course covers four years of nearly nine months each. The total fees for the four years, respectively, are $315, $315, $315 and $320. The total registration for 1932-1933 was 191; graduates, 42. The sixtieth session begins Sept. 26, 1933, and ends June 13, 1934. The Dean is Waller S. Leathers, M.D.

TEXAS

Dallas

BAYLOR UNIVERSITY COLLEGE OF MEDICINE, 810 College Avenue.—Organized in 1900 as the University of Dallas Medical Department. In 1903 it took its present name and became the Medical Department of Baylor University. It acquired the charter of Dallas Medical College in 1904. Coeducational since organization. The first class graduated in 1901. The faculty consists of 64 professors and 67 instructors and assistants, a total of 131. Entrance requirements are two years of collegiate work. The course is four years of eight months each. The fees for each of the four years, respectively, are $312, $297, $282 and $287. Total registration for 1932-1933 was 348; graduates, 75. The thirty-fourth session begins Oct. 2, 1933, and ends May 28, 1934. The Dean is W. H. Moursund, M.D.

Galveston

UNIVERSITY OF TEXAS SCHOOL OF MEDICINE, 912 Avenue B.—Organized in 1891. The first class graduated in 1892. Coeducational since organization. It has a faculty of 42 professors and 15 lecturers and instructors, a total of 57. The curriculum covers four years of eight months each. The entrance requirement is two years of collegiate work. The total fees for the four years, respectively, are $80, $82, $74, $84. There is a matriculation fee of $30 for each year. Total registration for 1932-1933 was 334; graduates, 70. The forty-third session begins October 2, 1933, and ends May 31, 1934. The Dean is George E. Bethel, M.D.

UTAH

Salt Lake City

UNIVERSITY OF UTAH SCHOOL OF MEDICINE.—Organized in 1906. Coeducational since organization. Gives only first two years of medical course. Each school year covers thirty-six weeks. Three years of collegiate work is required for admission. The medical faculty consists of 7 professors and 18 lecturers and assistants, a total of 25. The fees are $190 for the first year and $200 for the second year. Total registration for 1932-1933 was 65. The twenty-seventh session begins Sept. 25, 1933, and ends June 2, 1934. The Dean is L. L. Daines, M.D.

VERMONT

Burlington

UNIVERSITY OF VERMONT COLLEGE OF MEDICINE, Pearl Street, College Park.—Organized with complete course in 1822. Classes graduated in 1823 to 1836, inclusive, when the school was suspended. It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years. Coeducational since 1920. It has a faculty of 31 professors and 37 lecturers, instructors, preceptors and others, a total of 68. Seventy-two hours of collegiate work is required for admission. The course of study covers four years of nine months each. For residents of Vermont the tuition fee is $300 each session. Nonresidents are charged an additional $75 each session. A student activity fee of $30 is charged all students not holding academic degrees or in attendance four years previously, and a $25 fee for the Doctor's degree. The total registration for 1932-1933 was 150; graduates, 38. The next session begins Sept. 15, 1933, and ends June 18, 1934. The Dean is J. N. Jenne, M.D.

VIRGINIA

Charlottesville

UNIVERSITY OF VIRGINIA DEPARTMENT OF MEDICINE.—Organized in 1827. Classes were graduated in 1828 and in all subsequent years except 1865. Coeducational since the session 1920-1921. It has a faculty of 31 professors and 38 lecturers, instructors, assistants and others, a total of 69. The requirements for admission are the completion of a four-year high school course, or its equivalent, and two years of collegiate work devoted to English, mathematics, chemistry, physics and biology. For residents of Virginia the total fees for the four years, respectively, are $377.50, $355, $330 and $325. Nonresidents are charged an additional $50 each year. The total registration for 1932-1933 was 247; graduates, 59. The one hundred and tenth session begins Sept. 14, 1933, and ends June 12, 1934. The Dean is J. Carroll Flippin, M.D.

Richmond

MEDICAL COLLEGE OF VIRGINIA, Twelfth and Clay streets.—Organized in 1838 as the Medical Department of Hampden Sydney College. Present title was taken in 1854. In 1913 the University College of Medicine was merged. In 1914 the North Carolina Medical College was merged. Coeducational since 1918. Classes were graduated in 1839 and in all subsequent years. It has a faculty of 64 professors and 79 lecturers, instructors and others, a total of 143. The requirements for admission are a four-year high school education and in addition two years of collegiate work, including courses in physics, chemistry, biology and English. The course covers four years of eight and one-half months each. Total fees for the four years, respectively, are $307, $307, $292 and $322. Nonresidents are charged an additional $100 each year. The total registration for 1932-1933 was 346; graduates, 87. The ninety-sixth session begins Sept. 12, 1933, and ends May 29, 1934. The Dean is Lee E. Sutton, Jr., M.D.

WEST VIRGINIA

Morgantown

WEST VIRGINIA UNIVERSITY SCHOOL OF MEDICINE.—Organized in 1902 and gives only the first two years of the medical course. Coeducational since organization. Sixty-six semester hours of collegiate work is required for admission, and the bachelor's degree will be granted to those who finish the two years in medicine. Session extends through nine months. The faculty numbers 11 professors and 14 lecturers, instructors, assistants and others, a total of 25. Fees: for residents of the state, $115 each year; for nonresidents, $365. The total registration for 1932-1933 was 140. The next session begins Sept. 14, 1933, and ends June 12, 1934. The Dean is John N. Simpson, M.D.

WISCONSIN

Madison

UNIVERSITY OF WISCONSIN MEDICAL SCHOOL, 412 North Charter Street.—Organized in 1907. Gave only first two years of the medical course until 1925, when the clinical years were added. Coeducational since organization. For matriculation, at least two years in a college of arts and science or an equivalent training is required, including one year of Latin, a reading knowledge of French or German, and at least a year's work in physics, chemistry and biology, and a semester's work in organic chemistry. It has a faculty of 64 professors and 67 lecturers, instructors and others, a total of 131. The fees for each year are, respectively, $150, $130, $103 and $43. An additional fee of $200 is charged for nonresidents. The total registration for 1932-1933 was 313; graduates, 50. The twenty-sixth session begins Sept. 20, 1933, and ends June 18, 1934. The Dean is C. R. Bardeen, M.D.

Milwaukee

MARQUETTE UNIVERSITY SCHOOL OF MEDICINE, 561 North Fifteenth Street.—Organized in December, 1912, by the merger of the Milwaukee Medical College and the Wisconsin College of Physicians and Surgeons. Coeducational since organization. It has a faculty of 169. The minimum entrance requirements are sixty-four semester hours of collegiate work, including courses in physics, chemistry, biology, and a modern foreign language. The curriculum covers four years of eight and a half months each, and one year's internship in an approved hospital. The fees for the four years, respectively, are $389, $379, $379 and $364. The total registration for 1932-1933 was 279; graduates, 60. The twenty-second session begins Oct. 2, 1933, and ends June 13, 1934. The Dean is Eben J. Carey, M.D.

CANADA

Alberta

UNIVERSITY OF ALBERTA FACULTY OF MEDICINE, Edmonton.—Organized in 1913. Coeducational since organization. Has given the complete six-year medical course since 1924. The faculty includes 44 professors and 45 instructors, assistants and others, a total of 89. Fees for first year are $181; for the second, third and fourth years are $245; for the fifth and sixth years are $276. The registration for 1932-1933 was 164; graduates, 15. The twenty-first session begins Sept. 25, 1933, and ends May 15, 1934. The Dean is Allan Coats Rankin, M.D.

Manitoba

UNIVERSITY OF MANITOBA FACULTY OF MEDICINE, Corner of Emily and Bannatyne Avenue, Winnipeg.—Organized in 1883 as Manitoba Medical College; first class graduated in 1886, and a class graduated each subsequent year. The college transferred all its property to the University of Manitoba in 1919 and assumed the present title. Coeducational since organization. The faculty includes 45 professors, 82 instructors and assistants, a total of 127. The total fees for the five years, respectively, are $276, $266, $276, $276 and $135. Matriculation requirements include two years of collegiate work in the faculty of arts and science of a recognized university subsequent to the complete high school

course required for entrance to the latter. The course extends over four years of eight months each and a hospital internship. Total registration for 1932-1933 was 246; graduates, 42. The next session begins Sept. 21, 1933, and ends May 25, 1934. The Dean is A. T. Mathers, M.D.

Nova Scotia

DALHOUSIE UNIVERSITY FACULTY OF MEDICINE, Halifax.—Organized in 1867. Incorporated as the Halifax Medical College in 1875. Reorganized as an examining faculty, separate from the Halifax Medical College, in 1885. In 1911, in accordance with an agreement between the Governors of Dalhousie University and the Corporation of the Halifax Medical College, the work of the latter institution was discontinued and a full teaching faculty was established by the university. By an arrangement between Dalhousie University and the Provincial Medical Board of Nova Scotia, the final professional examinations are conducted conjointly by the university and the board, and candidates may qualify at the same time for their academic degrees and the provincial license. First class graduated in 1872. Coeducational since 1871. It has a faculty of 23 professors and 45 demonstrators, lecturers and others, a total of 68. Requires for matriculation two years of arts. The medical course covers four years and a hospital internship of one year. The fees are $312, $312, $317 and $302 for each year, respectively; $100 additional registration fee payable by students outside the British Empire. The total registration in regular classes for 1932-1933 was 135; graduates, 29. The next session begins Sept. 12, 1933, and ends May 15, 1934. The Dean is H. G. Grant, M.D.

Ontario

QUEEN'S UNIVERSITY FACULTY OF MEDICINE, Kingston.—Organized 1854, first class graduated in 1855, and a class graduated each subsequent year. The faculty was originally a department of the university, but a separation took place in 1866, when the school was conducted under the charter of the Royal College of Physicians and Surgeons at Kingston. It admitted women from 1880 until 1883. In 1892 the school again became a part of Queen's University. The faculty numbers 56. The fees for the six years are, respectively, $175.75, $185.75, $185.75, $210.75, $210.75 and $240.75. The last includes the fee of $30 for the M.D., C.M. degrees. The course covers six years of thirty teaching weeks each, the first including courses in physics, chemistry, biology, history or economics or English. The total registration in 1932-1933 was 301; graduates, 45. The next session begins Sept. 25, 1933, and ends May 23, 1934. The Dean is Frederick Etherington, M.D.

UNIVERSITY OF WESTERN ONTARIO MEDICAL SCHOOL, Ottaway Avenue, London.—Organized in 1881 as the Western University Faculty of Medicine; first class graduated in 1883, and a class graduated each subsequent year. Present title in 1923. The medical school has been under the control of the Board of Governors of the University of Western Ontario since 1913. Coeducational since 1913. The faculty numbers 75. Two years of premedical college work, including courses in physics, chemistry and biology, is required for admission to a four year medical course—all of which is referred to as a six year medical course. The total fees to residents of Canada for the last four years, respectively, are $200, $200, $208 and $233. The registration for 1932-1933 was 132; graduates, 37. The next session begins Sept. 21, 1933, and ends June 6, 1934. The Dean is A. B. Macallum, M.D.

UNIVERSITY OF TORONTO FACULTY OF MEDICINE, Toronto.—Organized in 1843 as the Medical Faculty of King's College. Abolished in 1853. Reestablished in 1887. In 1902 it absorbed Victoria University, Medical Department, and in 1903 it absorbed the Medical Faculty of Trinity University. Coeducational since 1903. The course of study covers six years of eight months each, the first two being devoted largely to physics, chemistry, biology and cultural courses in history, science and English. It has a faculty of 63 professors and 232 lecturers, associates and others, a total of 295. The fees are $170 for the first year; for the second, $220; $285 for the third year; $220 for the fourth and fifth years, and $244 for the sixth year. The total registration for 1932-1933 was 818; graduates, 127. The next session begins Sept. 26, 1933, and ends May 19, 1934. The Dean is J. G. FitzGerald, M.D.

Quebec

MCGILL UNIVERSITY FACULTY OF MEDICINE, 3640 University Street, Montreal.—Founded 1824 as Montreal Medical Institution; became the Medical Faculty of McGill University in 1829; first class graduated under the university auspices in 1833. No session between 1836-1839, owing to political troubles. In 1905 it absorbed the Faculty of Medicine of the University of Bishop College. Coeducational since 1919. The course consists of three premedical years, and five medical years of eight months each. The faculty consists of 63 professors and 142 lecturers and others, a total of 205. The total fees for each of the five medical years are $393. The total registration for 1932-1933 was 475; graduates, 83. The next session begins Sept. 20, 1933 and ends May 1, 1934. The Dean is Charles F. Martin, M.D.

UNIVERSITY OF MONTREAL, FACULTY OF MEDICINE, 1265 St. Denis Street, Montreal.—Organized in 1843, incorporated in 1845 as the Montreal School of Medicine and Surgery. In 1891, by act of Parliament, the Medical Faculty of Laval University (organized in 1878) was absorbed. Present name by act of Parliament in 1920. A class was graduated in 1843 and in each subsequent year. Coeducational since 1925. The faculty numbers 108. One year of premedical college work is required for admission to a five year medical course. The total fees for each of the five years, respectively, are $244.85, $220.35, $264.65, $232.70 and $218.00. The total registration for 1932-1933 was 194; graduates, 49. The next session begins Sept. 15, 1933, and ends June 15, 1934. The Dean is Louis de Lotbinière Harwood, M.D., and the Vice-Dean and Director of Studies is Télesphore Parizeau, M.D.

LAVAL UNIVERSITY FACULTY OF MEDICINE, Quebec.—The Quebec School of Medicine, organized in 1848, became in 1852 the Laval University Faculty of Medicine; first class graduated in 1855, and a class graduated each subsequent year. The faculty numbers 88. The fees for each of the medical years are $160, $170, $160, $160 and $180 for residents of Canada. Nonresidents are charged an extra fee of $190 each year. One year of premedical college work is required for admission to a five year medical course. Total registration for 1932-1933 was 253; graduates, 47. The next session begins Sept. 11, 1933, and ends May 31, 1934. The Dean is Arthur Rousseau, M.D.

Saskatchewan

UNIVERSITY OF SASKATCHEWAN SCHOOL OF MEDICAL SCIENCES, Saskatoon.—Organized in 1926. Coeducational. Offers the first two years only following a minimum of two years' university work, mainly in physics, chemistry and biology. Students require three more years for graduation, making in all seven years from matriculation. The medical faculty includes 8 professors and 4 lecturers and assistants, a total of 12. The fees are $150 for each year. The total registration for 1932-1933 was 52. The next session begins Sept. 22, 1933, and ends May 11, 1934. The Dean is W. S. Lindsay, M.B.

INSTITUTIONS OFFERING GRADUATE COURSES FOR PHYSICIANS APPROVED BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

CALIFORNIA

University of California Graduate Division, Berkeley.
Stanford University School of Medicine, San Francisco.

COLORADO

University of Colorado School of Medicine, Denver.

CONNECTICUT

New Haven School of Physical Therapy.
Yale University Graduate School, New Haven.

ILLINOIS

Children's Memorial Hospital, Chicago.
Northwestern University Medical School, Chicago.
Rush Medical College, Chicago.
University of Illinois College of Medicine, Chicago.

INDIANA

Indiana University School of Medicine, Indianapolis.

IOWA

State University of Iowa College of Medicine, Iowa City.

KANSAS

University of Kansas School of Medicine, Kansas City.

LOUISIANA

Tulane University Graduate School of Medicine (New Orleans Polyclinic), New Orleans.

MARYLAND

Johns Hopkins University School of Hygiene and Public Health, Baltimore.
Johns Hopkins University School of Medicine, Baltimore.

MASSACHUSETTS

Harvard School of Public Health, Boston.
Harvard University Medical School, Boston.
Massachusetts Institute of Technology, Cambridge.

MICHIGAN

University of Michigan Medical School, Ann Arbor.
Detroit College of Medicine and Surgery.

MINNESOTA

University of Minnesota, Graduate School of Medicine, Minneapolis-Rochester.

MISSOURI

Washington University School of Medicine, St. Louis.

NEW JERSEY

Physiatric Institute, Morristown.

NEW YORK

Albany Medical College.
University of Buffalo School of Medicine.
Columbia University, New York.
College of Physicians and Surgeons.
New York Post-Graduate Medical School.
Cornell University Medical College, New York.
New York Eye and Ear Infirmary, School of Ophthalmology and Otology, New York.
New York Polyclinic Medical School and Hospital, New York.
New York University, University and Bellevue Hospital Medical College, New York.
New York State Hospital, Ray Brook.
Trudeau School of Tuberculosis, Saranac Lake.

OHIO

University of Cincinnati College of Medicine.
Western Reserve University Graduate School, Cleveland.
Ohio State University College of Medicine, Columbus.

PENNSYLVANIA

University of Pennsylvania Graduate School of Medicine, Philadelphia.

PUERTO RICO

University of Puerto Rico School of Tropical Medicine (under the auspices of Columbia University, New York), San Juan.

TENNESSEE

Vanderbilt University School of Medicine, Nashville.

WISCONSIN

University of Wisconsin Medical School, Madison.

HOSPITALS APPROVED FOR INTERNSHIPS

By the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago

Revised to Aug. 26, 1933

The following general hospitals containing 214,248 beds are considered in position to furnish acceptable internships for medical graduates.

HOSPITALS, 689. INTERNSHIPS, 6,204

Name of Hospital	Location	Number of Beds						Internships					
		Surgical	Medical	Obstetric	Pediatric	Other	Total	Affiliated—For What Service	Number	By Examination or Appointment	Length of Service in Months	Begin	Salary per Month	Dispensary Service
ALABAMA														
Hillman Hospital	Birmingham	220	120	46	38	40	464	No	14	Ap.	12	July	No	Req.
Norwood Hospital	Birmingham	yes	yes	12	16	yes	220	No	2	Ap.	12	July	$25	Req.
Employees' Hospital of the Tennessee Coal, Iron and Railroad Co.	Fairfield	104	105	22	48	31	310	No	8	Ap.	12	July	$25	Req.
John A. Andrew Memorial Hospital [1] (col.)	Tuskegee Institute	30	30	10	10	20	100	No	3	Ap.	12	July & Sept.	$6	Req.
ARIZONA														
St. Joseph's Hospital	Phoenix	86	43	14	11	16	170	No	1	Ap.	12	July	$25	Op.
ARKANSAS														
Baptist State Hospital	Little Rock	yes	yes	yes	yes	yes	315	No	3	Ap.	12	July	$50	None
Little Rock City Hospital	Little Rock	70	45	12	12	..	139	No	4	Ap.	12	July	$52.50	Req.
St. Vincent's Infirmary	Little Rock	yes	yes	yes	yes	yes	150	No	4	Ap.	12	June	$25	None
CALIFORNIA														
Fresno County General Hospital	Fresno	124	156	16	60	146	502	No	10	Ap.	12	July	$25	Req.
Glendale Sanitarium and Hospital	Glendale	30	190	10	no	44	274	No	3	Ap.	12	July	$65 (a)	None
Loma Linda Sanitarium and Hospital	Loma Linda	yes	yes	yes	yes	yes	124	(3)	3	Ap.	12	July	$55 (a)	Req.
Seaside Hospital	Long Beach	98	78	45	no	79	300	No	..	Ap.	12	Aug.	$25	Req.
California Hospital	Los Angeles	97	48	30	28	104	307	(4)	10	Ap.	12	July	$25	Req.
Cedars of Lebanon Hospital	Los Angeles	100	100	40	10	40	290	No	8	Ap.	12	July	$25	Req.
Hollywood Clara Barton Memorial Hosp.	Los Angeles	85	38	54	5	134	316	No	5	Ap.	12	July	$50	None
Los Angeles County General Hospital, Unit No. 1 [1]	Los Angeles	476	855	37	116	40	1,524	No	94	Ex.	12	(1-a)	No	Op.
St. Vincent's Hospital	Los Angeles	100	65	45	yes	40	250	No	3	Ap.	12	July	$25	None
Santa Fe Coast Lines Hospital	Los Angeles	yes	yes	no	no	yes	150	(5)	6	Ap.	12	July & Sept.	$22.50	Req.
White Memorial Hospital [1]	Los Angeles	42	43	22	6	19	132	No	9	Ap.	12	July	$50 (a)	Req.
U. S. Naval Hospital	Mare Island	241	244	no	no	422	907	(6)	..	Both	12	July	(b)	Req.
Alameda County Hospitals [1]	Oakland	170	68	25	32	1,265	1,560	(7)	24	Both	12	July	$25	Req.
Orange County Hospital	Orange	50	52	12	20	128	262	No	7	Ap.	12	July	$15-$20	Req.
Pasadena Hospital	Pasadena	105	43	26	12	24	210	(8)	4	Ap.	12	July	$35	Req.
Sacramento Hospital	Sacramento	110	168	27	31	114	450	No	10	Ap.	12	July	$50	Req.
San Bernardino County Charity Hospital	San Bernardino	60	40	16	15	184	315	No	7	Ap.	12	July	$25	Req.
San Diego County General Hospital	San Diego	134	200	35	32	272	673	No	14	Ap.	12	July	$15-$20	Req.
U. S. Naval Hospital	San Diego	yes	yes	no	no	yes	964	(9)	5	Both	12	July	(b)	Req.
French Hospital [1]	San Francisco	90	88	12	18	12	220	No	6	Ap.	12	July	$40 (c)	Req.
Hospital for Children [2]	San Francisco	yes	yes	44	48	91	300	No	10	Ap.	12	July	$10	Req.
Mary's Help Hospital	San Francisco	yes	yes	yes	yes	yes	160	No	4	Ap.	12	July	$25	Req.
Mount Zion Hospital	San Francisco	58	57	27	30	26	198	No	6	Ap.	12	June	$25	Req.
St. Joseph's Hospital	San Francisco	118	87	29	12	..	246	No	4	Ap.	12	July	$50	None
St. Luke's Hospital [1]	San Francisco	yes	yes	yes	18	yes	225	No	4	Ap.	12	July	$15 (d)	Req.
St. Mary's Hospital [1]	San Francisco	125	89	37	34	..	285	No	5	Ap.	12	July	$25	Req.
San Francisco Hospital [1]	San Francisco	176	294	34	53	880	1,437	(10)	41	Ap.	12	July	$10	Op.
Southern Pacific General Hospital	San Francisco	200	200	no	no	no	400	(11)	15	Ap.	12	July	$30	Req.
Stanford University Hospitals [1] (including Lane Hospital)	San Francisco	40	31	27	38	204	340	No	13	Ap.	12	July	No	Req.
U. S. Marine Hospital	San Francisco	260	212	no	no	no	472	(12)	6	Both	12	July	(b)	Op.
University of California Hospital [1]	San Francisco	87	59	53	64	24	287	No	19	Ap.	12	June	$10	Req.
Santa Clara County Hospital	San Jose	60	117	26	38	231	472	No	8	Ap.	12	July	$30	Req.
St. Francis Hospital	Santa Barbara	35	30	15	5	15	100	(13)	2	Ap.	12	July	$20	Req.
Santa Barbara Cottage Hospital [1]	Santa Barbara	yes	yes	yes	yes	yes	282	(13)	5	Ap.	12	July	$20	Req.
Santa Barbara General Hospital	Santa Barbara	34	54	9	21	107	225	(14)	3	Ap.	12	July	$20	None
COLORADO														
Boulder Colorado Sanitarium and Hosp. [1]	Boulder	13	78	6	4	6	107	(15)	1	Ap.	12	July	$35	Req.
Beth-El General Hospital	Colorado Springs	68	68	17	7	35	195	No	1	Ap.	12	June	$15	None
Glockner Sanatorium and Hospital	Colorado Springs	yes	yes	13	..	122	223	No	1	Ap.	12	June	$25	Op.
St. Francis Hospital and Sanatorium	Colorado Springs	yes	yes	yes	yes	yes	150	No	1	Ap.	12	July	$30	Op.
Colorado General Hospital [1]	Denver	54	54	25	25	20	178	(16)	9	Ap.	12	July & Aug.	$25	Req.
Denver General Hospital	Denver	95	65	30	46	353	589	No	12	Ap.	18	Jan. & July	$30	None
Mercy Hospital	Denver	120	25	25	10	45	225	No	4	Ap.	12	July	$25	Req.
Presbyterian Hospital [1] [2]	Denver	yes	yes	yes	..	yes	172	No	4	Ap.	12	July	$25	None
St. Anthony's Hospital	Denver	yes	yes	yes	yes	yes	215	No	4	Ap.	12	July	$25	None
St. Joseph's Hospital	Denver	82	45	30	6	62	225	No	4	Ap.	12	July	$30	Req.
St. Luke's Hospital	Denver	125	34	35	25	30	249	No	6	Ap.	12	July	$25	Op.
CONNECTICUT														
Bridgeport Hospital	Bridgeport	37	40	60	45	218	400	No	8	Ap.	12	July	No	Req.
St. Vincent's Hospital	Bridgeport	70	65	35	46	35	251	(17)	6	Ap.	12	July	$20	Op.
Danbury Hospital	Danbury	57	22	21	11	23	134	No	2	Ap.	12	July	$40	None
Hartford Hospital	Hartford	83	80	62	54	501	780	No	18	Ap.	18	Jan. & July	(e)	None
Municipal Hospital	Hartford	40	42	35	35	197	349	No	10	Ap.	12	July	$10	Req.
St. Francis Hospital	Hartford	180	100	110	30	60	480	(18)	10	Ap.	12	July	No	Req.
Meriden Hospital	Meriden	43	36	18	15	24	136	No	3	Ap.	12	July	$25 (f)	Op.
Middlesex Hospital	Middletown	yes	yes	yes	yes	yes	160	No	2	Ap.	12	July & Sept.	$35 (g)	None
New Britain General Hospital	New Britain	95	40	41	31	36	243	No	5	Ap.	12	July	$30	Req.
Grace Hospital	New Haven	91	68	59	24	44	286	No	9	Both	18	Jan. & July	....	Op.
Hospital of St. Raphael	New Haven	150	25	30	30	25	260	No	6	Ap.	12	July	$25	None
New Haven Hospital [1]	New Haven	117	91	39	52	205	504	No	31	Ap.	12-20	(1-b)	No	Req.
Lawrence & Memorial Associated Hospitals	New London	22	18	35	34	121	230	No	3	Ap.	12	July	$25	None
Norwalk General Hospital	Norwalk	yes	yes	yes	yes	yes	165	No	3	Ap.	12	July	$35 (k)	None
William W. Backus Hospital	Norwich	yes	yes	yes	yes	yes	155	No	2	Ap.	12	July & Sept.	$25	Req.
Stamford Hospital	Stamford	59	48	42	26	91	266	No	4	Ap.	12	July	$50	Req.
St. Mary's Hospital	Waterbury	52	56	44	16	96	264	No	4	Ap.	12	July	$25	Req.
Waterbury Hospital	Waterbury	yes	yes	28	15	34	282	No	7	Ap.	12	July & Oct.	$25	Req.
DELAWARE														
Delaware Hospital	Wilmington	78	39	24	35	24	200	No	6	Ap.	12	July	$25	Req.

Numerical and other references will be found on page 707.

Name of Hospital	Location	Number of Beds: Surgical	Medical	Obstetric	Pediatric	Other	Total	Affiliated—For What Service	Internships: Number	By Examination or Appointment	Length of Service in Months	Begin	Salary per Month	Dispensary Service
DISTRICT OF COLUMBIA														
Central Disp. and Emergency Hospital	Washington	65	41	no	no	154	260	No	17	Ap.	12	July	$10	Req.
Freedmen's Hospital [1] (col.)	Washington	55	55	44	yes	111	265	No	26	Ap.	12	July & Oct.	$10	Req.
Gallinger Municipal Hospital [1]	Washington	160	160	50	50	244	664	No	16	Ap.	12	July	$15	None
Garfield Memorial Hospital [1]	Washington	yes	yes	yes	yes	yes	321	No	9	Ap.	12	July	$10 (g)	Req.
Georgetown University Hospital	Washington	106	47	39	10	65	267	No	8	Ap.	12	July	$10	Req.
George Washington University Hospital [1]	Washington	yes	yes	yes	no	yes	117	No	4	Ap.	12	July	$15	Req.
Providence Hospital	Washington	125	74	26	22	30	277	No	6	Ap.	12	July	$10	Req.
St. Elizabeths Hosp. [1] (Med. & Surg. Dept.)	Washington	50	350	no	no	no	400	(19)	4	Ex.	24	July & Oct.	(b)	Req.
Sibley Memorial Hospital	Washington	91	30	75	14	100	310	No	6	Ap.	12	July	$20	Req.
U. S. Naval Hospital	Washington	84	165	no	no	188	437	(92)	..	Both	12	June	(b)	None
Washington Sanitarium and Hospital, [1] Takoma Park	Washington	24	136	10	no	12	182	(125)	1	Ap.	12	July	$25	Req.
FLORIDA														
Duval County Hospital	Jacksonville	yes	yes	15	39	37	185	No	8	Ap.	24	July	$20-$30	Req.
St. Luke's Hospital	Jacksonville	yes	yes	22	6	50	175	No	3	Ap.	12	July	$30	Req.
James M. Jackson Memorial Hospital	Miami	yes	yes	yes	yes	yes	325	No	9	Ap.	12	July	$25	Req.
Tampa Municipal Hospital [1]	Tampa	yes	yes	yes	yes	yes	194	No	5	Ap.	12	July & Sept.	$25	Req.
GEORGIA														
Grady Hospital (White Unit)	Atlanta	140	75	75	40	..	330	No	22	Ap.	12	July	$15	Req.
Grady Hospital, Emory University Division (Colored Unit)	Atlanta	104	53	30	20	59	266	No	12	Ap.	12	July	$15	Req.
Piedmont Hospital	Atlanta	yes	yes	9	10	yes	116	No	4	Ap.	12	July	$40	None
University Hospital [1]	Augusta	yes	yes	yes	yes	yes	287	No	10	Ap.	12	July	$10 (i)	Req.
Wesley Memorial Hospital	Emory University	yes	yes	yes	yes	yes	156	No	5	Ap.	12	July	$30	None
Macon Hospital	Macon	yes	yes	yes	yes	yes	160	No	4	Ap.	12	July	$30 (j)	Req.
ILLINOIS														
Alexian Bros. Hosp. (male patients only)	Chicago	96	70	no	10	80	256	(20)	7	Ap.	12	July	$50	None
American Hospital [1]	Chicago	75	35	20	15	21	166	No	4	Ap.	12	July	$20	None
Augustana Hospital	Chicago	215	75	30	30	25	375	No	10	Ap.	18-24	Jan. & July	No	None
Chicago Memorial Hospital	Chicago	37	27	20	4	20	108	No	4	Ap.	12	July	No	Req.
Columbus Hospital	Chicago	50	30	23	21	53	177	No	4	Ap.	12	July	$25	None
Cook County Hospital [1]	Chicago	620	750	400	450	1,195	3,415	No	96	Ex.	18	Jan. & July	No	None
Edgewater Hospital	Chicago	yes	yes	yes	yes	yes	140	No	5	Ap.	12	July	$10	None
Englewood Hospital	Chicago	45	25	20	7	28	135	No	4	Ap.	12	Jan. & July	$25	Req.
Evangelical Hospital	Chicago	92	30	60	18	60	260	No	6	Ap.	12	July	$25	None
Frances E. Willard Hospital [1]	Chicago	44	32	54	5	5	140	No	4	Ap.	12	Jan. & July	No	Req.
Garfield Park Community Hospital	Chicago	yes	yes	32	15	yes	228	No	6	Ap.	12	July	No	Op.
Grant Hospital [1]	Chicago	163	34	34	yes	40	271	No	7	Ap.	12	July	No	Req.
Holy Cross Hospital	Chicago	33	25	22	yes	24	104	No	3	Ap.	12	June	$10	None
Hospital of St. Anthony de Padua	Chicago	117	40	48	15	45	265	No	6	Ap.	18	(1-e)	$10	None
Illinois Central Hospital	Chicago	yes	yes	24	no	yes	271	No	8	Ap.	12	(1-e)	No	Req.
Illinois Masonic Hospital [1]	Chicago	yes	yes	yes	yes	yes	184	No	6	Ap.	12	July	No	Req.
Lake View Hospital	Chicago	yes	yes	yes	no	yes	140	No	4	Ap.	12	July	$25	Op.
Lutheran Deaconess Home and Hospital	Chicago	yes	yes	43	6	yes	215	No	5	Ap.	12	July	$10	None
Lutheran Memorial Hospital	Chicago	yes	yes	33	10	30	205	No	4	Ap.	12	July	$25	Op.
Mercy Hospital	Chicago	155	110	50	25	35	375	No	12	Ap.	12	July	No	Req.
Michael Reese Hospital [1]	Chicago	yes	yes	yes	yes	yes	654	(21)	36	Ap.	24	Jan. & July	No	Op.
Mother Cabrini Memorial Hospital [1]	Chicago	59	21	33	12	43	168	No	4	Ap.	12	July	$25	None
Mount Sinai Hospital [1]	Chicago	yes	yes	44	yes	yes	204	No	8	Both	12	July	No	Op.
Norwegian-American Hospital	Chicago	54	50	31	10	50	195	No	6	Ap.	12	April & July	$20	Req.
Passavant Memorial Hospital [1]	Chicago	yes	yes	yes	no	yes	213	(22)	6	Ap.	12	(1-d)	No	Req.
Presbyterian Hospital	Chicago	148	110	65	50	80	453	No	32	Ap.	18	(1-e)	No	Req.
Provident Hospital [1] (col.)	Chicago	yes	yes	yes	yes	yes	110	No	6	Ap.	12	Jan. & June	No	Op.
Ravenswood Hospital	Chicago	yes	yes	yes	yes	yes	193	No	5	Ap.	12	July	No	Req.
Research and Educational Hospital, University of Illinois [1]	Chicago	39	50	50	30	247	396	No	12	Ex.	12	July	No	Op.
Roseland Community Hospital	Chicago	yes	yes	yes	yes	yes	128	No	4	Ap.	12	July	$15	Op.
St. Anne's Hospital	Chicago	109	62	57	20	60	308	No	7	Ap.	12	June	No	Req.
St. Bernard Hospital	Chicago	82	46	51	21	30	230	No	6	Ap.	12	July	No	None
St. Elizabeth Hospital	Chicago	123	71	38	16	39	287	No	6	Ap.	12	July	No	Req.
St. Joseph Hospital	Chicago	70	35	35	25	35	200	No	6	Ap.	12	April & July	No	Req.
St. Luke's Hospital	Chicago	239	125	44	45	206	659	No	24	Both	12	April & July	No	Req.
St. Mary of Nazareth Hospital	Chicago	112	76	38	36	38	300	No	6	Ap.	12	July	No	None
Swedish Covenant Hospital [1]	Chicago	70	50	42	6	42	210	No	5	Ap.	12	March	$10	None
U. S. Marine Hospital	Chicago	35	88	no	no	27	150	(23)	4	Ap.	12	July	(b)	None
University Hospital	Chicago	45	30	19	6	21	121	No	3	Ap.	12	July	$50	Req.
University of Chicago Clinics [1]	Chicago	81	80	no	60	60	281	(24)	30	Ap.	12	(1-e)	No	Req.
Washington Boulevard Hospital	Chicago	yes	yes	yes	yes	yes	110	No	6	Ap.	18	(1-f)	No	Req.
Wesley Memorial Hospital [1]	Chicago	119	50	22	21	21	233	No	8	Ap.	18	Jan. & July	No	None
Women and Children's Hospital [2]	Chicago	22	39	25	16	25	127	No	5	Ap.	12	July	No	Req.
Woodlawn Hospital	Chicago	100	20	20	yes	32	172	No	3	Ap.	12	June	No	None
St. Mary's Hospital	East St. Louis	121	84	30	25	35	295	No	4	Ap.	12	July	$25	None
Evanston Hospital	Evanston	yes	yes	yes	yes	yes	271	No	12	Ap.	12	(1-e)	No	Req.
St. Francis Hospital	Evanston	125	80	50	45	50	350	No	8	Ap.	12	July	$25	None
St. Joseph's Hospital	Joliet	yes	yes	yes	yes	yes	232	No	2	Ex.	12	July	$25	Op.
Oak Park Hospital	Oak Park	51	40	32	12	40	175	No	6	Ap.	12	July	$10	Op.
West Suburban Hospital	Oak Park	194	43	70	20	100	427	No	12	Ap.	12	July & Oct.	No	Req.
St. Francis Hospital	Peoria	113	140	25	22	35	335	No	3	Ap.	12	July	$25	None
St. Mary Hospital	Quincy	85	68	18	24	20	215	No	2	Ap.	12	July	$25	None
Rockford Hospital	Rockford	yes	yes	18	10	yes	110	No	2	Ap.	12	July	$25-$35	None
St. Anthony's Hospital	Rock Island	70	44	20	10	24	168	No	1	Ap.	12	Sept.	$25	Op.
INDIANA														
St. Catherine's Hospital	East Chicago	yes	yes	yes	yes	yes	350	No	3	Ap.	12	July	$25 (f)	None
Protestant Deaconess Hospital	Evansville	yes	yes	yes	yes	yes	181	No	1	Ap.	12	June	$40	None
Lutheran Hospital	Fort Wayne	80	43	25	18	23	189	No	2	Ap.	12	July	$25 (f)	Req.
St. Joseph Hospital	Fort Wayne	78	63	40	25	84	290	No	4	Ap.	12	July	$25 (f)	None
St. Mary's Mercy Hospital	Gary	60	96	50	15	29	250	No	4	Ap.	12	July	$25 (f)	None
St. Margaret's Hospital	Hammond	111	58	38	28	15	250	No	7	Ap.	12	Jan. & July	$35	None
Indiana University Hospitals [1]	Indianapolis	yes	yes	yes	yes	yes	482	(26)	18	Ap.	12	July	$12.50	Req.
Indianapolis City Hospital	Indianapolis	197	196	21	59	135	608	No	26	Ap.	12	July	$12.50	Req.
Methodist Episcopal Hospital	Indianapolis	135	80	52	30	59	356	No	16	Ap.	12	July	$12.50	Req.
St. Vincent's Hospital	Indianapolis	yes	yes	35	12	yes	295	No	6	Ap.	12	July	$25	None
St Elizabeth Hospital	La Fayette	108	58	20	18	46	250	No	4	Ap.	12	July	$25	None
Ball Memorial Hospital	Muncie	yes	yes	19	12	18	160	No	1	Ap.	12	July	$15	None
Epworth Hospital	South Bend	38	25	25	37	62	187	No	3	Ap.	12	July	$50	Op.
St. Joseph Hospital	South Bend	52	52	22	21	28	175	No	2	Ap.	12	July	$50	Op.
IOWA														
Mercy Hospital	Cedar Rapids	41	39	21	20	20	141	No	1	Ap.	12	July	$25	Req.
Jennie Edmundson Memorial Hospital	Council Bluffs	yes	yes	yes	yes	yes	140	No	2	Ap.	12	June	$25	Op.

Numerical and other references will be found on page 707.

Name of Hospital	Location	Number of Beds						Affiliated—For What Service	Internships					Dispensary Service
		Surgical	Medical	Obstetric	Pediatric	Other	Total		Number	By Examination or Appointment	Length of Service in Months	Begin	Salary per Month	
IOWA—Continued														
Mercy Hospital	Council Bluffs	yes	yes	14	14	14	149	(27)	3	Ap.	12	June	$25 (g)	Req.
Mercy Hospital	Davenport	34	30	20	12	39	135	No	2	Ap.	12	July	$30	None
Broadlawns—Polk County Public Hospital	Des Moines	yes	yes	16	16	yes	116	(28)	6	Ap.	12	July	$30	Req.
Iowa Lutheran Hospital	Des Moines	75	30	20	15	..	140	No	3	Ap.	12	July	$50	None
Iowa Methodist Hospital	Des Moines	yes	yes	yes	yes	yes	249	No	6	Ap.	12	July	$30	None
Mercy Hospital	Des Moines	yes	yes	yes	yes	yes	176	(28)	3	Ap.	12	July	$35	None
University Hospitals [1]	Iowa City	yes	yes	yes	yes	yes	1,008	No	18	Ap.	12	July	(h)	Req.
St. Joseph's Mercy Hospital	Sioux City	95	47	22	16	20	200	No	3	Ap.	12	July	$25	None
KANSAS														
Bell Memorial Hospital [1]	Kansas City	64	50	30	42	64	250	(29)	8	Ap.	12	July	$15	Req.
Bethany Methodist Hospital	Kansas City	yes	yes	20	yes	yes	144	No	3	Ap.	12	July	$40	None
St. Margaret's Hospital	Kansas City	104	86	15	30	15	250	No	5	Ap.	12	July	$25	Req.
St. Francis Hospital	Wichita	100	80	25	40	105	350	No	4	Ap.	12	July	$40	Req.
Wesley Hospital	Wichita	106	36	27	40	26	235	(30)	5	Ap.	12	July	$35 (j)	Req.
KENTUCKY														
St. Elizabeth Hospital	Covington	159	130	34	27	25	375	No	4	Ap.	12	July	$40	Req.
Good Samaritan Hospital	Lexington	98	70	25	15	30	238	(31)	3	Ap.	12	July	$25	Req.
St. Joseph's Hospital	Lexington	yes	yes	yes	yes	yes	245	No	3	Ap.	12	July	$35 (g)	None
Louisville City Hospital [1]	Louisville	120	120	40	40	120	440	(32)	18	Ap.	12	July	$10	Req.
Norton Memorial Infirmary	Louisville	yes	yes	yes	yes	yes	192	No	1	Ap.	12	July	$20	Req.
St. Anthony's Hospital	Louisville	64	19	20	6	48	157	No	2	Ap.	12	July	$50	None
St. Joseph Infirmary	Louisville	136	108	28	28	26	326	No	3	Ap.	12	July	$25	None
SS. Mary and Elizabeth Hospital	Louisville	yes	yes	16	yes	yes	163	No	2	Ap.	12	July	$40	None
LOUISIANA														
Charity Hospital [1]	New Orleans	401	246	75	134	953	1,809	No	68	Ap.	12	July	$10	Req.
Flint-Goodridge Hospital of Dillard University (col.)	New Orleans	41	22	6	6	25	100	No	5	Ap.	12	July	$10-$25	Req.
Hotel Dieu Hospital	New Orleans	yes	yes	yes	yes	yes	261	No	5	Ap.	12	July	$25	None
Mercy Hospital	New Orleans	yes	yes	yes	yes	yes	153	No	2	Ap.	12	July	$50	Op.
Southern Baptist Hospital [1]	New Orleans	yes	yes	36	12	24	222	No	9	Ap.	12	July	$15	None
Touro Infirmary [1]	New Orleans	yes	yes	yes	yes	yes	373	No	15	Ap.	12	July	$12	Req.
U. S. Marine Hospital	New Orleans	118	161	no	no	221	500	(25)	17	Ap.	12	July	(b)	Req.
T. E. Schumpert Memorial Sanitarium	Shreveport	yes	yes	yes	yes	yes	162	No	2	Ap.	12	July	$80	Op.
Shreveport Charity Hospital	Shreveport	yes	yes	yes	yes	yes	524	No	12	Ap.	12	July	$10	None
MAINE														
Eastern Maine General Hospital	Bangor	yes	yes	yes	yes	yes	173	No	3	Ap.	12	July	$25-$50	Req.
Central Maine General Hospital	Lewiston	60	20	24	26	51	181	No	3	Ap.	12	July	No	None
Maine General Hospital	Portland	yes	yes	yes	yes	yes	277	No	6	Ap.	12	July	No	Req.
MARYLAND														
Baltimore City Hospitals [1]	Baltimore	133	97	4	no	1,021	1,255	No	18	Ap.	12	July	$2-300 yr.	Req.
Church Home and Infirmary [1]	Baltimore	yes	yes	22	yes	19	181	No	7	Ap.	12	July	$15	Req.
Franklin Square Hospital	Baltimore	yes	yes	yes	yes	yes	129	No	5	Ap.	12	July	$12.50 (k)	None
Hospital for Women [1]	Baltimore	yes	yes	24	no	24	135	(33)	5	Ap.	12	July	$15	Req.
Johns Hopkins Hospital [1]	Baltimore	196	148	153	100	312	909	No	64	Ap.	12	Sept.	No	Req.
Maryland General Hospital	Baltimore	yes	yes	yes	yes	yes	228	No	8	Ap.	12	July	$10	Req.
Mercy Hospital	Baltimore	yes	yes	yes	yes	yes	290	No	9	Ap.	12	July	No	Req.
Provident Hospital and Free Disp. (col.)	Baltimore	yes	yes	yes	yes	yes	129	No	8	Ap.	12	July & Oct.	No	Req.
St. Agnes Hospital	Baltimore	70	54	18	20	49	211	No	8	Ap.	12	July	No	Req.
St. Joseph's Hospital	Baltimore	yes	yes	yes	yes	yes	290	No	12	Ap.	12	July	No	Op.
Sinai Hospital	Baltimore	yes	yes	yes	yes	yes	269	No	21	Ap.	12	July	No	Req.
South Baltimore General Hospital	Baltimore	84	10	10	11	..	115	No	6	Ap.	12	July	$25	Req.
Union Memorial Hospital	Baltimore	yes	yes	21	59	24	337	No	15	Ap.	12	July	No	Req.
U. S. Marine Hospital	Baltimore	89	84	no	no	46	219	(34)	4	Both	12	July	(b)	Req.
University Hospital [1]	Baltimore	93	67	22	24	69	275	No	14	Ap.	12	July	No	Req.
West Baltimore General Hospital	Baltimore	70	60	21	14	35	200	No	8	Ap.	12	July	$15	Req.
MASSACHUSETTS														
Beverly Hospital	Beverly	yes	yes	yes	yes	yes	141	No	3	Ap.	12	(1-g)	$25	None
Beth Israel Hospital	Boston	105	72	no	25	..	202	No	11	Ex.	16-20½	Varies	No	Req.
Boston City Hospital [1]	Boston	374	405	138	166	1,202	2,285	(35)	86	Both	12-24	Varies	No	Req.
Carney Hospital	Boston	68	75	18	23	26	210	No	12	Both	16	(1-h)	No	Req.
Faulkner Hospital	Boston	74	35	21	yes	20	150	No	2	Ap.	12	June	No	None
Long Island Hospital [1]	Boston	50	281	29	125	65	550	No	6	Both	12	July	$50	Req.
Massachusetts General Hospital	Boston	212	139	no	30	24	405	No	39	Both	12-25	(1-e)	No	Req.
Massachusetts Memorial Hospitals [1]	Boston	yes	yes	32	26	181	331	(124)	12	Ap.	12	Aug.	No	Op.
New England Hospital for Women and Children,[2] Roxbury	Boston	35	15	75	60	75	260	No	8	Ap.	12	July & Oct.	No	Req.
Peter Bent Brigham Hospital	Boston	123	124	no	no	..	247	No	23	Ex.	16-16½	(1-d)	No	Req.
St. Elizabeth's Hospital, Brighton	Boston	84	58	59	40	59	300	No	9	Ap.	21	Varies	No	Req.
Brockton Hospital	Brockton	yes	yes	yes	yes	yes	158	No	3	Ap.	18	June	$25	Req.
Cambridge Hospital	Cambridge	yes	yes	50	75	yes	316	(36)	6	Both	18	(1-e)	No	Req.
U. S. Naval Hospital	Chelsea	yes	yes	no	no	..	853	(37)	12	Both	12	July	(b)	None
Union Hospital	Fall River	yes	yes	35	50	yes	180	No	2	Both	12	July	$30-$50	Req.
Providence Hospital	Holyoke	yes	yes	yes	yes	yes	140	No	2	Ap.	12	June	$25	None
Lawrence General Hospital	Lawrence	yes	yes	20	24	yes	152	No	2	Ap.	12	June	$10	Req.
Lowell General Hospital	Lowell	yes	yes	30	14	yes	180	No	2	Ex.	12	July	$25	Req.
St. John's Hospital	Lowell	yes	yes	20	27	24	157	No	3	Both	12	June	No	Req.
St. Joseph's Hospital	Lowell	yes	yes	17	12	yes	111	No	1	Ap.	12	July	$25	Req.
Lynn Hospital	Lynn	51	30	46	30	46	203	No	3	Ap.	12	June & July	$300 yr.	Req.
St. Luke's Hospital	New Bedford	yes	yes	yes	yes	yes	330	No	6	Ap.	12	July	No	Req.
Newton Hospital	Newton	66	50	46	16	112	290	No	4	Ex.	12	June & July	No	Req.
House of Mercy Hospital	Pittsfield	25	25	32	26	114	222	No	2	Ap.	12	July	$40	Op.
Quincy City Hospital [1]	Quincy	yes	yes	54	30	50	299	No	4	Ap.	12	Jan. & July	$50	Req.
Salem Hospital	Salem	70	21	27	19	50	187	No	3	Both	12	July & Aug.	$25	Req.
Mercy Hospital	Springfield	170	60	50	50	50	380	(38)	6	Ap.	12	July	$25	Req.
Springfield Hospital	Springfield	yes	yes	no	yes	yes	166	(39)	9	Both	18	Jan. & July	No	Req.
Waltham Hospital	Waltham	yes	yes	53	61	yes	216	No	3	Ap.	12	Mar. & July	$25	Op.
Memorial Hospital	Worcester	42	20	30	48	75	215	No	9	Ap.	18	July	No	Req.
Worcester City Hospital	Worcester	105	104	50	30	111	400	No	17	Ex.	24	Varies	No	Req.
Worcester Hahnemann Hospital	Worcester	yes	yes	yes	yes	yes	140	No	2	Ap.	12	July	$45	None
MICHIGAN														
St. Joseph's Mercy Hospital	Ann Arbor	yes	yes	yes	yes	yes	150	(40)	1	Ap.	12	July	$20	Req.
University Hospital [1]	Ann Arbor	190	204	176	110	589	1,269	(41)	30	Both	12	July	No	Op.
Leila Y. Post Montgomery Hospital	Battle Creek	yes	yes	yes	yes	yes	200	No	2	Ap.	12	July	...	Req.
Mercy Hospital	Bay City	35	22	20	29	54	160	No	2	Ap.	12	July	$35-$50	Req.
City of Detroit Receiving Hospital	Detroit	200	166	no	39	295	700	(42)	32	Ap.	12	July	$25 (m)	Req.
Evangelical Deaconess Hospital	Detroit	55	30	20	5	25	135	No	3	Ap.	12	July	$25	Req.
Grace Hospital [1]	Detroit	117	84	40	36	77	354	(42)	24	Ap.	12	July & Sept.	$20	Req.

Numerical and other references will be found on page 707.

Name of Hospital	Location	Number of Beds: Surgical	Medical	Obstetric	Pediatric	Other	Total	Affiliated—For What Service	Internships: Number	By Examination or Appointment	Length of Service in Months	Begin	Salary per Month	Dispensary Service
MICHIGAN—Continued														
Harper Hospital	Detroit	250	200	100	no	200	750	(43)	37	Ap.	12	July	No	Req.
Henry Ford Hospital [1]	Detroit	yes	yes	65	125	50	610	No	26	Both	12	Sept.	$125 (a)	Op.
Providence Hospital	Detroit	149	30	125	44	102	450	(44)	13	Both	12	July	$25	Op.
St. Joseph Mercy Hospital	Detroit	yes	yes	24	48	32	200	No	6	Both	12	July	$25	Req.
St. Mary's Hospital	Detroit	165	100	30	50	30	375	(45)	7	Ap.	12	July	$25	Req.
Eloise Infirmary	Eloise	373	604	no	no	349	1,326	(42)	16	Ap.	12	July	$25	Req.
Hurley Hospital [1]	Flint	130	130	50	33	92	435	No	13	Ap.	12	July	$25	Req.
Blodgett Memorial Hospital [1]	Grand Rapids	yes	yes	17	14	18	150	No	3	Ap.	12	July	$25	Req.
Butterworth Hospital	Grand Rapids	89	47	51	32	51	270	No	6	Both	12	July	No	Req.
St. Mary's Hospital	Grand Rapids	118	45	35	20	35	253	(46)	4	Ap.	12	July	$10	Req.
Highland Park General Hospital	Highland Park	yes	yes	32	14	65	200	No	6	Ap.	12	July	No	Req.
W. A. Foote Memorial Hospital	Jackson	yes	yes	34	11	yes	162	(47)	4	Ap.	12	July & Sept.	$25	Req.
Edward W. Sparrow Hospital	Lansing	yes	yes	yes	yes	yes	145	No	2	Ap.	12	July	$35	Req.
St. Lawrence Hospital	Lansing	yes	yes	yes	yes	yes	128	No	2	Ap.	12	July	$45	None
Hackley Hospital [1]	Muskegon	30	30	17	15	33	125	No	2	Ap.	12	July	$30	None
Mercy Hospital	Muskegon	25	25	25	12	37	124	No	2	Ap.	12	July	$30	Req.
Saginaw General Hospital	Saginaw	51	38	25	15	27	156	No	3	Ap.	12	July	$45	Op.
St. Mary's Hospital	Saginaw	88	30	20	18	20	176	No	2	Ap.	12	July	$45	Req.
MINNESOTA														
St. Luke's Hospital	Duluth	93	52	30	26	69	270	No	6	Ap.	12	Jan. & July	$12.50	Op.
St. Mary's Hospital	Duluth	94	100	34	30	42	300	No	8	Ap.	12	Jan. & Apr.	$12.50	Req.
Asbury Hospital [1]	Minneapolis	78	29	25	no	20	152	No	3	Ap.	12	Jan. & July	$25	None
Eitel Hospital	Minneapolis	yes	yes	yes	yes	yes	120	No	2	Ap.	12	Jan. & July	$25	None
Fairview Hospital	Minneapolis	yes	yes	50	10	55	225	(48)	5	Ap.	12	Jan. & July	$25	None
Lutheran Deaconess Home and Hospital	Minneapolis	48	38	30	4	30	150	No	3	Ap.	12	Jan. & July	$25	None
Minneapolis General Hospital [1]	Minneapolis	yes	yes	yes	yes	yes	653	No	27	Ap.	12	Jan. & July	No	Req.
Northwestern Hospital [1]	Minneapolis	yes	yes	yes	yes	yes	197	No	4	Ap.	12	Jan. & July	$25 (g)	None
St. Barnabas Hospital	Minneapolis	yes	yes	23	9	23	166	No	2	Ap.	12	July	$25	None
St. Mary's Hospital	Minneapolis	114	52	39	35	60	300	No	6	Ap.	12	April & July	$25	Req.
Swedish Hospital	Minneapolis	yes	yes	42	20	42	313	No	6	Ap.	12	July	$25	Req.
University Hospitals [1]	Minneapolis	90	70	25	80	140	405	(49)	21	Ap.	12	July	No	Req.
Ancker Hospital	St. Paul	yes	yes	yes	yes	yes	1,050	No	24	Ap.	12	July	No	Req.
Bethesda Hospital	St. Paul	yes	yes	yes	yes	yes	110	No	2	Ap.	12	July	$25	None
Charles T. Miller Hospital	St. Paul	yes	yes	21	24	21	216	(50)	6	Ap.	12	July	No	Req.
Northern Pacific Beneficial Association Hosp.	St. Paul	50	50	10	no	52	162	No	2	Ap.	12	July	$25	Req.
St. Joseph's Hospital	St. Paul	120	65	30	31	24	270	(48)	6	Ap.	12	July	$25	Op.
MISSOURI														
St. Louis County Hospital	Clayton	50	49	71	23	55	228	No	7	Ap.	12	July	$25	Op.
Kansas City General Hospital	Kansas City	115	100	45	30	185	475	No	24	Ap.	12	July	$25	Req.
Kansas City General Hospital No. 2 [1] (col.)	Kansas City	yes	yes	yes	yes	yes	303	No	12	Ap.	12	July	$20	Req.
Research Hospital [1]	Kansas City	yes	yes	yes	yes	yes	225	No	6	Ap.	12	July	$25	None
St. Joseph Hospital	Kansas City	119	66	22	23	26	256	No	5	Ap.	12	July	$25	None
St. Luke's Hospital	Kansas City	100	71	27	10	32	240	No	4	Ap.	12	July	$25	None
St. Mary's Hospital	Kansas City	yes	yes	yes	yes	yes	181	No	5	Ap.	12	July	$25	None
Trinity Lutheran Hospital	Kansas City	yes	yes	31	yes	yes	149	No	4	Ap.	12	July	$30	None
Missouri Methodist Hospital [1]	St. Joseph	110	50	15	25	20	220	No	5	Ap.	12	July	$30	Req.
St. Joseph's Hospital	St. Joseph	yes	yes	16	12	yes	150	No	2	Ap.	12	July	$30	None
Alexian Bros. Hosp. (male patients only)	St. Louis	62	58	no	no	130	250	(51)	5	Ap.	12	July	$25	Req.
Barnes Hospital	St. Louis	102	68	no	no	100	270	(52)	32	Ap.	12-18	Jan. & July	No	Op.
Christian Hospital	St. Louis	40	35	25	10	23	133	No	3	Ap.	12	July	$50	Req.
De Paul Hospital	St. Louis	100	60	60	30	35	285	No	8	Ap.	12	July	$25	Op.
Evangelical Deaconess Home and Hospital	St. Louis	60	30	20	15	50	175	No	4	Ap.	12	July	$25 (g)	None
Jewish Hospital	St. Louis	100	100	53	24	33	290	(53)	11	Ap.	12	July	$15	Req.
Lutheran Hospital [1]	St. Louis	yes	yes	yes	yes	yes	184	No	3	Ap.	12	July	$25 (f)	Req.
Missouri Baptist Hospital	St. Louis	yes	yes	41	34	yes	500	No	9	Ap.	12	July	$25	None
St. Anthony's Hospital	St. Louis	100	44	40	16	50	250	No	5	Ap.	12	July	$25	None
St. John's Hospital	St. Louis	127	100	36	39	31	333	No	9	Ap.	12	July	$20	Op.
St. Louis City Hospital	St. Louis	330	240	110	55	235	970	(54)	54	Ap.	12	July	(n)	Op.
St. Louis City Hospital No. 2 (col.)	St. Louis	100	120	53	50	147	470	No	15	Ap.	12	July	(n)	Op.
St. Luke's Hospital	St. Louis	yes	yes	yes	yes	yes	210	No	7	Ap.	12	July	$25	Req.
St. Mary's Group of Hospitals	St. Louis	135	105	50	20	433	743	(55)	22	Ap.	12	July	No	Req.
MONTANA														
Murray Hospital	Butte	yes	yes	12	yes	yes	132	No	2	Ap.	12	Jan. & July	$40	Req.
St. James Hospital	Butte	71	44	13	13	22	163	No	2	Ap.	12	July	$50	Req.
NEBRASKA														
St. Francis Hospital	Grand Island	76	18	16	20	..	130	No	1	Ap.	12	July	$50	None
Lincoln General Hospital [1]	Lincoln	41	41	25	25	20	152	No	2	Ap.	12	July	$25	Op.
St. Elizabeth's Hospital	Lincoln	yes	yes	yes	yes	yes	200	No	2	Ap.	12	July	$35	None
Bishop Clarkson Memorial Hospital	Omaha	yes	yes	13	10	yes	108	No	3	Ap.	12	June	$25	Op.
Creighton Memorial, St. Joseph's Hospital [1]	Omaha	203	103	43	32	52	433	No	10	Ap.	12	July	$25	Op.
Douglas County Hospital	Omaha	73	63	18	20	245	418	No	11	Ap.	12	June & July	$20	Req.
Evangelical Covenant Hospital	Omaha	30	27	26	17	25	125	No	2	Ap.	12	June	$50	Req.
Immanuel Deaconess Institute	Omaha	35	30	18	12	44	139	No	4	Ap.	12	June	$25 (o)	None
Nebraska Methodist Episcopal Hospital	Omaha	yes	yes	27	23	yes	200	No	5	Ap.	12	July	$25	None
St. Catherine's Hospital	Omaha	yes	yes	34	yes	yes	177	No	4	Ap.	12	July	$25	None
University of Nebraska Hospital	Omaha	40	25	35	40	96	236	No	12	Ap.	12	July	$25	Req.
NEW HAMPSHIRE														
Mary Hitchcock Memorial Hospital [1]	Hanover	yes	yes	28	12	yes	142	No	4	Ap.	12	Jan. & July	$100 yr.	Req.
NEW JERSEY														
Atlantic City Hospital	Atlantic City	yes	yes	yes	yes	yes	370	(56)	8	Ap.	12	July	$25	Req.
Bayonne Hospital and Dispensary	Bayonne	40	50	26	20	64	200	No	5	Ap.	15	Varies	$25	Req.
Cooper Hospital	Camden	100	52	54	25	109	340	No	10	Ap.	12	July	$10 (g)	Op.
West Jersey Homeopathic Hospital	Camden	75	46	38	55	53	267	No	8	Ap.	12	June	$20	Req.
Homeopathic Hospital of Essex County	East Orange	yes	yes	24	14	yes	120	No	2	Ap.	12	July	$40	Req.
Alexian Bros. Hosp. (male patients only)	Elizabeth	60	70	no	9	39	178	(57)	2	Ap.	12	July	$75	Req.
Elizabeth General Hospital and Dispensary	Elizabeth	54	35	30	18	89	226	No	8	Ap.	12	July	$25	Req.
St. Elizabeth Hospital	Elizabeth	120	55	44	21	20	260	No	5	Ap.	12	July	$25	Req.
Englewood Hospital [1]	Englewood	67	23	33	29	60	212	No	8	Ap.	12-18	Jan. & July	$22	Req.
Hackensack Hospital [1]	Hackensack	86	65	30	30	44	255	No	7	Ap.	12	July	$25	Req.
St. Mary Hospital [1]	Hoboken	148	151	33	43	85	460	No	8	Ap.	12	July & Oct.	$25	Req.
Christ Hospital	Jersey City	95	34	22	24	34	209	No	6	Ap.	12	Jan. & July	$25	Req.
Jersey City Medical Center [1]	Jersey City	200	200	300	70	430	1,200	(126)	54	Ap.	12-24	(1-q)	No	Req.
St. Francis Hospital	Jersey City	116	58	17	38	..	229	(58)	6	Ap.	12	July	$25	Req.
Monmouth Memorial Hospital	Long Branch	32	22	13	27	114	208	(59)	9	Ap.	18	Jan. & July	$25	Req.
Mountainside Hospital	Montclair	130	82	53	53	32	350	No	7	Ap.	12	July	$25	Req.
Morristown Memorial Hospital	Morristown	yes	yes	42	yes	yes	160	No	4	Ap.	12	(1-i)	$50	Req.
Hospital of St. Barnabas	Newark	yes	yes	yes	yes	yes	138	No	4	Ap.	12	July	$45	Req.
Newark Beth Israel Hospital [1]	Newark	yes	yes	196	44	yes	414	No	12	Both	12	July	$8.33	Req.

Numerical and other references will be found on page 707.

Name of Hospital	Location	Number of Beds						Affiliated—For What Service	Internships					Dispensary Service
		Surgical	Medical	Obstetric	Pediatric	Other	Total		Number	By Examination or Appointment	Length of Service in Months	Begin	Salary per Month	
NEW JERSEY—Continued														
Newark City Hospital	Newark	279	152	71	94	185	781	No	21	Both	21	(1-e)	No	None
Newark Memorial Hospital	Newark	yes	yes	25	26	30	157	No	3	Ap.	12	July	$25	Req.
Presbyterian Hospital	Newark	131	28	47	..	59	265	(127)	4	Both	12	July	$25	Req.
St. James Hospital [1]	Newark	52	20	15	20	18	125	No	3	Ap.	12	July	$30	Req.
St. Michael's Hospital	Newark	109	98	no	42	51	300	(58)	7	Ap.	12	July	$30	Req.
St. Peter's General Hospital	New Brunswick	yes	yes	25	24	yes	187	No	4	Ap.	12	July & Sept.	(o)	Req.
Orange Memorial Hospital	Orange	yes	yes	yes	yes	yes	388	No	7	Ap.	12	July	$25	Req.
Passaic General Hospital [1]	Passaic	116	40	20	10	39	225	No	4	Ap.	12	July	$25	Req.
St. Mary's Hospital [1]	Passaic	58	56	45	30	36	225	No	3	Ap.	12	July	$50	Req.
Nathan and Miriam Barnert Memorial Hosp.	Paterson	61	12	18	14	12	117	No	4	Ap.	12	July & Oct.	$15-$20	Req.
Paterson General Hospital	Paterson	yes	yes	yes	yes	yes	320	No	6	Ex.	12	July & Oct.	$25	Op.
St. Joseph's Hospital	Paterson	149	92	52	22	85	400	No	6	Ap.	12	July	$25	Req.
Muhlenberg Hospital	Plainfield	90	75	35	40	35	275	No	5	Ap.	12	July	$25	Req.
Holy Name Hospital	Teaneck	yes	yes	42	33	41	222	(60)	5	Ap.	12-18	July	$50	Req.
Mercer Hospital	Trenton	52	31	74	20	73	250	No	5	Ap.	12	July	$33	Req.
St. Francis Hospital	Trenton	143	81	29	29	32	314	No	8	Ap.	12	July	$25	Req.
William McKinley Memorial Hospital	Trenton	36	40	22	8	40	146	No	4	Ap.	12	July	$37.50	Req.
North Hudson Hospital	Weehawken	yes	yes	28	33	yes	165	(58)	8	Ap.	24	July	$25	Req.
NEW YORK														
Albany Hospital [1]	Albany	170	77	33	42	178	500	No	16	Ap.	12	July	No	Req.
Memorial Hospital [1]	Albany	92	18	16	no	15	141	No	5	Ap.	12	July	$25	Req.
St. Peter's Hospital [1]	Albany	56	56	no	22	16	150	(61)	5	Ap.	12	July	$40	Req.
Auburn City Hospital	Auburn	yes	yes	44	21	..	155	No	2	Ap.	12	July	$50	Req.
Binghamton City Hospital [1]	Binghamton	84	69	78	31	115	377	No	9	Ap.	12	July	$50	Req.
Beth-El Hospital	Brooklyn	79	52	50	12	48	241	No	15	Both	18	Jan. & July	No	Req.
Beth Moses Hospital	Brooklyn	73	49	30	43	30	225	No	14	Both	24	Jan. & July	No	Req.
Brooklyn Hospital	Brooklyn	118	74	50	yes	80	322	No	14	Both	24	July	No	Op.
Caledonian Hospital [1]	Brooklyn	30	8	23	40	29	130	No	2	Ap.	12	June	$25	Req.
Coney Island Hospital [1]	Brooklyn	150	56	28	36	30	300	No	20	Both	24	July	No	Req.
Cumberland Hospital	Brooklyn	106	65	33	59	58	321	No	24	Ex.	24	July	No	Op.
Greenpoint Hospital	Brooklyn	98	64	60	36	42	300	No	14	Ex.	24	July	No	Req.
Israel-Zion Hospital	Brooklyn	93	75	96	15	136	415	(62)	24	Ex.	24	Jan. & July	No	None
Jewish Hospital [1]	Brooklyn	33	64	62	35	480	674	(62)	52	Ex.	30	Jan. & July	No	Req.
Kings County Hospital	Brooklyn	313	497	128	50	672	1,660	No	72	Ap.	24	(1-e)	No	Req.
Long Island College Hospital	Brooklyn	139	61	30	36	214	480	(63)	18	Ap.	12	July	(j)	Req.
Methodist Episcopal Hospital	Brooklyn	185	56	80	16	80	417	No	12	Ap.	24	July	No	None
Norwegian Lutheran Deaconess Home and Hospital [1]	Brooklyn	52	27	30	15	77	201	No	12	Ap.	12	July	No	Req.
St. Catherine's Hospital	Brooklyn	109	50	49	44	60	312	No	12	Ap.	24	July	No	Req.
St. John's Hospital	Brooklyn	59	43	21	26	94	234	No	10	Ex.	24	July	No	Req.
St. Mary's Hospital	Brooklyn	93	70	42	43	42	290	No	10	Ap.	24	July	No	Req.
St. Peter's Hospital	Brooklyn	134	76	13	15	26	264	No	6	Both	12	July	No	None
U. S. Naval Hospital	Brooklyn	265	382	no	no	445	1,092	(66)	12	Both	12	June	(b)	None
Wyckoff Heights Hospital	Brooklyn	80	50	22	18	30	200	No	9	Both	18	Jan. & July	No	Req.
Buffalo and Emergency Hospitals of the Sisters of Charity	Buffalo	yes	yes	yes	yes	yes	335	(64)	4	Ex.	12	July	$25	Req.
Buffalo City Hospital [1]	Buffalo	188	114	24	52	485	863	No	12	Ap.	12	July	$50	Req.
Buffalo General Hospital	Buffalo	94	77	26	30	233	460	No	14	Ap.	12	July	No	Req.
Deaconess Hospital	Buffalo	yes	yes	36	27	35	225	No	6	Ap.	12	July	$25	None
Mercy Hospital	Buffalo	60	34	39	28	38	199	No	4	Ap.	12	July	$30	Req.
Millard Fillmore Hospital	Buffalo	65	171	65	yes	yes	301	No	10	Ap.	12	July	$25	Req.
Arnot-Ogden Memorial Hospital	Elmira	30	29	32	31	91	213	No	2	Ap.	12	July	$25 (k)	Req.
St. Joseph's Hospital [1]	Elmira	58	61	27	34	27	207	No	3	Ap.	12	July	$35	None
Ideal Hospital [1]	Endicott	42	25	29	17	30	143	No	2	Ap.	12	July	$50	None
Flushing Hospital and Dispensary	Flushing	57	25	49	39	78	248	No	8	Ap.	24	July	$25	Req.
Mary Immaculate Hospital [1]	Jamaica	yes	yes	50	52	50	319	No	12	Both	24	July	No	Req.
Charles S. Wilson Memorial Hospital	Johnson City	67	47	27	32	27	200	No	3	Ap.	12	July	$50	Req.
St. John's Long Island City Hospital	Long Island City	138	52	93	21	..	304	No	14	Ap.	24	July	No	Req.
Nassau Hospital	Mineola	96	20	29	30	30	205	No	6	Ap.	18	Jan. & July	$50	None
Mount Vernon Hospital [1]	Mount Vernon	66	36	36	7	40	185	No	6	Both	12	Jan. & July	(p)	Op.
New Rochelle Hospital	New Rochelle	yes	yes	53	13	yes	147	No	6	Ap.	12	July	$35	Req.
Bellevue Hospital [1]	New York	340	363	78	179	1,109	2,069	No	79	Ex.	12-24	Jan. & July	No	Req.
Beth David Hospital [1]	New York	34	16	12	14	52	128	No	6	Ex.	12	July	No	Req.
Beth Israel Hospital [1]	New York	yes	yes	yes	yes	yes	343	(65)	24	Both	12-24	(1-e)	No	Op.
Bronx Hospital	New York	yes	yes	49	19	yes	338	No	13	Both	24	(1-n)	No	Req.
Columbus Hospital	New York	75	40	40	25	120	300	No	8	Both	12-18	July & Oct.	No	Req.
Fifth Avenue Hospital	New York	105	52	32	71	40	300	No	9	Ap.	12-15	(1-e)	No	Req.
Fordham Hospital	New York	255	130	51	59	114	609	No	28	Both	12-24	(1-d)	No	Op.
French Hospital	New York	130	70	no	no	no	200	No	11	Ap.	24	(1-j)	No	Req.
Gouverneur Hospital	New York	97	50	22	41	..	210	No	14	Both	12-24	Jan. & July	No	Req.
Harlem Hospital [1]	New York	95	94	40	56	40	325	No	33	Ex.	24	Jan. & July	No	None
Hospital for Joint Diseases	New York	30	30	no	10	285	355	(65)	13	Ex.	24	Jan. & July	No	Req.
Knickerbocker Hospital	New York	41	35	16	8	100	200	No	8	Both	24	(1-e)	No	Req.
Lebanon Hospital	New York	51	45	18	20	48	182	No	11	Both	20-28	(1-k)	No	Req.
Lenox Hill Hospital	New York	86	58	22	48	186	400	No	16	Both	24	Jan. & July	(q)	None
Lincoln Hospital	New York	51	46	25	44	47	213	No	22	Ex.	24	Jan. & July	No	Req.
Metropolitan Hospital [1]	New York	214	384	40	226	756	1,620	No	36	Ex.	24	July	No	Req.
Misericordia Hospital [1]	New York	55	30	75	17	145	322	No	4	Ap.	12	July	$10	Req.
Montefiore Hospital for Chronic Diseases [1]	New York	39	128	no	no	536	703	No	11	Ap.	12	Jan. & July	$25	Req.
Morrisania City Hospital [1]	New York	155	155	77	80	72	539	No	32	Ex.	24	Jan. & July	No	Op.
Mount Sinai Hospital [1]	New York	249	254	no	yes	201	704	No	31	Both	12-30	Jan. & July	(r)	None
New York City Hospital	New York	148	306	108	64	434	1,060	No	27	Ex.	18	Jan. & July	No	Req.
New York Homeopathic Medical College and Flower Hospital [1]	New York	yes	yes	yes	yes	yes	229	(67)	12	Both	12	July	(h)	Req.
New York Hospital [1]	New York	175	120	170	71	81	617	No	30	Ap.	12	Sept.	No	Req.
New York Infirmary for Women and Children [2]	New York	39	16	39	24	37	155	No	5	Ap.	12	(1-m)	$10	Req.
New York Polyclinic Medical School and Hospital	New York	91	50	45	16	143	[illegible]	No	8	Ap.	24	(1-e)	No	Req.
New York Post-Graduate Medical School and Hospital	New York	136	63	no	62	154	415	No	29	Both	12-28	Varies	No	Req.
Presbyterian and Sloane Hospitals [1]	New York	128	134	114	no	421	797	No	44	Both	25	(1-k)	No	Req.
Roosevelt Hospital	New York	137	80	no	20	139	376	No	19	Both	24	Jan. & July	No	Req.
St. Francis Hospital	New York	yes	yes	no	28	yes	425	No	8	Ap.	24	Jan. & July	No	None
St. Luke's Hospital [1]	New York	154	116	no	40	216	526	No	16	Ex.	24	Jan. & July	No	Req.
St. Vincent's Hospital	New York	188	128	50	69	..	435	No	32	Ex.	24	Jan. & July	No	Req.
Sydenham Hospital	New York	39	35	15	19	93	201	No	8	Ex.	24	(1-e)	No	None
U. S. Marine Hospital (Ellis Island)	New York	76	103	no	7	354	540	(68)	3	Ap.	12	July	(b)	Req.
United Hospital	Port Chester	yes	yes	yes	24	yes	200	No	5	Ap.	12	July	$45	Req.
Vassar Brothers Hospital	Poughkeepsie	26	26	40	21	112	225	No	4	Ap.	12	July	$30 (l)	Req.
Jamaica Hospital	Richmond Hill	yes	yes	yes	yes	yes	167	No	7	Both	18	Jan. & July	$30	Req.
Genesee Hospital	Rochester	78	31	30	25	50	214	No	6	Ap.	12	July	$15	Req.

Numerical and other references will be found on page 707.

Name of Hospital	Location	Number of Beds						Internships					
		Surgical	Medical	Obstetric	Pediatric	Other	Total	Affiliated—For What Service	Number	By Examination or Appointment	Length of Service in Months	Begin	Salary per Month	Dispensary Service
NEW YORK—Continued														
Highland Hospital	Rochester	yes	yes	yes	yes	190		No	5	Ap.	12	July	$22.50	Req.
Rochester General Hospital	Rochester	64	38	61	50	122	335	No	8	Ap.	12	July	No	Req.
St. Mary's Hospital	Rochester	94	65	20	yes	27	206	No	5	Ap.	12	July	$25	Req.
Strong Memorial and Rochester Municipal Hospitals [1]	Rochester	110	142	41	105	162	560	No	29	Ap.	12	July	No	Req.
Ellis Hospital [1]	Schenectady	156	23	39	28	39	285	(69)	8	Ap.	12	July	$20	Req.
St. Vincent's Hospital [1]	Staten Island	104	60	36	30	..	230	No	6	Both	18	(1-c)	No	Req.
Staten Island Hospital	Staten Island	98	78	58	yes	41	275	No	6	Ap.	18	(1-c)	No	Req.
U. S. Marine Hospital	Staten Island	123	95	no	no	84	302	(70)	7	Both	12	July	(b)	Req.
General Hospital of Syracuse	Syracuse	35	23	27	yes	25	110	No	2	Ap.	12	July	$25	Req.
Hospital of the Good Shepherd, Syracuse University	Syracuse	yes	yes	no	37	yes	269	(71)	8	Ap.	12	July & Aug.	No	None
St. Joseph Hospital	Syracuse	120	51	29	no	31	231	No	4	Ap.	12	July	$25	None
Syracuse Memorial Hospital	Syracuse	yes	yes	yes	yes	yes	250	No	8	Ap.	12	July	No	Req.
Samaritan Hospital	Troy	47	29	15	18	72	181	No	3	Ap.	12	(1-g)	$50	Req.
Troy Hospital	Troy	124	92	yes	30	12	262	(61)	4	Ap.	12	July	$30	Op.
Grasslands Hospital [1]	Valhalla	171	149	14	44	525	903	No	17	Ap.	18	Jan. & July	$25 (s)	Req.
St. John's Riverside Hospital	Yonkers	52	29	24	28	67	200	No	5	Ap.	12	Jan. & July	$50	Req.
St. Joseph's Hospital	Yonkers	51	25	14	10	20	120	(72)	4	Ap.	12	July	$25	Req.
NORTH CAROLINA														
Duke Hospital [1]	Durham	107	137	20	32	160	456	No	18	Ap.	12	July	No	Req.
Lincoln Hospital [1] (col.)	Durham	41	36	18	12	1	108	No	3	Ap.	12	June	$5	Req.
Watts Hospital	Durham	94	20	24	28	44	210	No	4	Ap.	12	July	$15 (g)	Req.
Highsmith Hospital	Fayetteville	35	28	4	8	31	106	No	1	Ap.	12	July	$25	Req.
L. Richardson Memorial Hospital [1] (col.)	Greensboro	19	12	6	10	17	64	No	1	Ap.	12	July	$10	Req.
Rex Hospital	Raleigh	yes	yes	16	17	yes	126	No	2	Ap.	12	July	$25 (f)	Req.
St. Agnes Hospital (col.)	Raleigh	52	18	10	10	10	100	No	3	Ap.	12	(1-o)	No	Req.
Park View Hospital [1]	Rocky Mount	yes	yes	yes	yes	yes	100	No	2	Ap.	12	July	$25	Req.
Davis Hospital	Statesville	yes	yes	yes	yes	yes	132	No	1	Ap.	12	July	No	Req.
James Walker Memorial Hospital	Wilmington	yes	yes	20	20	yes	150	No	4	Ap.	12	July	$25 (g)	Req.
City Memorial Hospital	Winston-Salem	100	60	25	20	55	260	(73)	6	Ap.	12	July	$25	Req.
NORTH DAKOTA														
St. John's Hospital	Fargo	52	37	30	15	31	165	No	2	Ap.	12	July	$30	Op.
OHIO														
City Hospital	Akron	218	55	38	no	39	350	(74)	12	Ap.	12	July	$20	Req.
St. Thomas Hospital	Akron	62	25	29	15	52	183	No	3	Ap.	12	July	$20	None
Mercy Hospital	Canton	60	48	32	21	39	200	No	2	Ap.	12	July	$25	None
Bethesda Hospital [1]	Cincinnati	94	39	40	24	81	278	No	6	Ap.	12	July	$25 (t)	Req.
Christ Hospital	Cincinnati	180	89	49	no	48	366	(75)	8	Both	12	July	$25	Req.
Cincinnati General Hospital [1]	Cincinnati	165	165	50	125	420	925	(76)	30	Ap.	12	July	No	Req.
Deaconess Hospital [1]	Cincinnati	81	44	25	yes	25	175	No	6	Ap.	12	Jan. & July	$25	Op.
Good Samaritan Hospital	Cincinnati	224	83	66	46	116	535	No	12	Ap.	12	July	$12.50	Req.
Jewish Hospital	Cincinnati	yes	yes	yes	yes	yes	272	No	7	Ap.	12	July	$20	None
St. Mary Hospital	Cincinnati	97	72	no	31	..	200	(77)	5	Ap.	12	July	$50	Req.
Charity Hospital	Cleveland	200	52	no	35	20	307	(78)	12	Ap.	12	July	No	Req.
City Hospital [1]	Cleveland	160	160	50	96	1,044	1,510	No	39	Ap.	12	July	No	Req.
Huron Road Hospital [1]	Cleveland	yes	yes	yes	yes	yes	120	No	3	Ap.	12	July	$50	Req.
Mount Sinai Hospital [1]	Cleveland	yes	yes	45	22	yes	270	(79)	11	Both	12	July	$10	Req.
St. Alexis Hospital	Cleveland	108	53	no	yes	59	220	(78)	8	Ap.	12	July	$10	Req.
St. John's Hospital	Cleveland	60	34	28	21	71	214	No	6	Ap.	12	July	$25	Req.
St. Luke's Hospital	Cleveland	131	83	57	41	82	394	No	14	Ap.	12	July	No	Req.
University Hospitals of Cleveland [1]	Cleveland	189	130	84	100	340	843	(80)	38	Both	12-24	Varies	No	Req.
Woman's Hospital [1]	Cleveland	14	18	31	12	45	120	(81)	3	Ap.	12	July	$30	None
Grant Hospital	Columbus	135	60	45	30	33	303	No	8	Ap.	12	July	$25	None
Mount Carmel Hospital	Columbus	156	28	24	6	25	239	(82)	3	Ap.	12	July	$25 (f)	None
St. Francis Hospital	Columbus	117	41	no	no	no	158	(83)	7	Both	12	July	$16.66	Req.
Starling-Loving University Hospital	Columbus	113	55	35	32	41	276	No	9	Ap.	12	July	$4	Req.
White Cross Hospital	Columbus	113	75	58	25	..	271	No	8	Ap.	12	July	$25	Op.
Miami Valley Hospital	Dayton	yes	yes	46	yes	46	383	No	12	Ap.	12	July	$25	Req.
St. Elizabeth Hospital	Dayton	70	60	35	25	230	420	No	8	Ap.	12	July	$25	Req.
Elyria Memorial Hospital	Elyria	32	18	29	45	30	154	No	2	Ap.	12	July	$25	None
Mercy Hospital	Hamilton	65	60	45	25	25	220	No	2	Ap.	12	July	$25 (u)	Req.
St. Rita's Hospital	Lima	47	25	16	12	16	116	(84)	2	Ap.	12	July	$25	Op.
Springfield City Hospital	Springfield	57	53	51	44	128	333	No	6	Ap.	12	July	$25	Req.
Flower Hospital	Toledo	yes	yes	32	yes	yes	125	No	3	Ap.	12	July	$70	None
Lucas County General Hospital	Toledo	80	84	34	50	67	315	No	6	Ap.	12	July	$40	Req.
Mercy Hospital	Toledo	yes	yes	20	12	yes	126	No	2	Ap.	12	July	$25	Op.
St. Vincent's Hospital	Toledo	171	68	45	57	46	387	No	8	Ap.	12	July	$25	Req.
Toledo Hospital	Toledo	yes	yes	25	22	25	275	No	6	Ap.	12	July	$25	None
St. Elizabeth's Hospital	Youngstown	92	86	36	38	48	300	No	5	Ap.	12	July	$20 (g)	Req.
Youngstown Hospital	Youngstown	143	109	68	30	100	450	No	10	Ap.	12	July	$20	Req.
OKLAHOMA														
St. Anthony Hospital	Oklahoma City	yes	yes	yes	yes	yes	415	No	8	Ap.	12	July	$15	None
State University Hospitals [1]	Oklahoma City	50	50	17	50	295	462	No	12	Ap.	12	July	$10 (g)	Req.
Wesley Hospital	Oklahoma City	100	28	22	yes	25	175	No	3	Ap.	12	July	$25 (g)	None
Morningside Hospital	Tulsa	yes	yes	yes	yes	yes	249	No	4	Ap.	12	July	$25 (g)	Req.
St. John's Hospital	Tulsa	yes	yes	yes	yes	yes	273	No	4	Ap.	12	July	$25	Req.
OREGON														
Emanuel Hospital	Portland	138	56	44	yes	66	304	(85)	6	Ap.	12	July	$20	None
Good Samaritan Hospital [1]	Portland	yes	yes	24	21	24	354	No	7	Ap.	12	July	$20	None
Multnomah Hospital	Portland	140	100	30	30	..	300	(86)	14	Ap.	12	July	$20	Req.
Portland Sanitarium and Hospital [1]	Portland	45	34	24	8	24	135	No	3	Ap.	12	July	$75 (a)	Req.
St. Vincent's Hospital	Portland	218	136	36	12	..	402	No	7	Ap.	12	July	$25	None
PENNSYLVANIA														
Abington Memorial Hospital	Abington	101	59	33	29	45	267	No	7	Ap.	12	July	No	Req.
Allentown Hospital [1]	Allentown	173	58	27	42	25	325	No	8	Ap.	12	July	No	Req.
Sacred Heart Hospital	Allentown	90	42	17	55	96	300	(87)	7	Ap.	12	July	No	Req.
Altoona Hospital	Altoona	40	36	18	10	76	180	No	5	Ap.	12	July	$25	Req.
Mercy Hospital [1]	Altoona	yes	yes	19	13	yes	135	No	4	Ap.	12	July	$25	Req.
St. Luke's Hospital	Bethlehem	91	40	20	24	31	206	No	7	Ap.	12	July	$15	Req.
Bryn Mawr Hospital	Bryn Mawr	yes	yes	yes	yes	yes	263	No	8	Ap.	12	July	No	Req.
Chester Hospital	Chester	134	50	37	29	35	285	No	6	Ap.	12	July	$20	Req.
G. F. Geisinger Memorial Hospital	Danville	yes	yes	yes	yes	yes	195	No	10	Ap.	12	July	No	Req.
Easton Hospital	Easton	71	41	19	19	70	220	No	5	Ap.	12	July	(u)	Req.
Hamot Hospital	Erie	56	56	65	30	48	255	No	7	Ap.	12	July	$50	Req.
St. Vincent's Hospital	Erie	yes	yes	24	36	30	215	No	8	Ap.	12	July	$25	Req.
Harrisburg Hospital [1]	Harrisburg	yes	yes	25	16	yes	264	No	8	Ap.	12	July	$25	Req.
Harrisburg Polyclinic Hospital [1]	Harrisburg	yes	yes	yes	yes	yes	185	No	4	Ap.	12	July	$50	Req.
Conemaugh Valley Memorial Hospital	Johnstown	80	60	33	68	27	268	No	6	Ap.	12	July	No	Req.
Lancaster General Hospital [1]	Lancaster	89	52	55	26	51	273	No	6	Ap.	12	July	$22.50	Req.
McKeesport Hospital	McKeesport	56	41	40	21	105	263	No	6	Ap.	12	July	$25	Req.

Numerical and other references will be found on page 707.

Name of Hospital	Location	Number of Beds						Affiliated—For What Service	Internships					Dispensary Service
		Surgical	Medical	Obstetric	Pediatric	Other	Total		Number	By Examination or Appointment	Length of Service in Months	Begin	Salary per Month	
PENNSYLVANIA—Continued														
Jameson Memorial Hospital	New Castle	yes	yes	52	yes	23	178	No	2	Ap.	12	July	$20	Req.
Montgomery Hospital	Norristown	40	20	12	10	43	125	No	4	Ap.	12	July	$30	Req.
Chestnut Hill Hospital	Philadelphia	22	22	35	12	23	114	No	4	Ap.	12	July	$50	Req.
Frankford Hospital	Philadelphia	60	24	23	12	23	142	No	7	Ap.	12	July	No	Req.
Germantown Dispensary and Hospital	Philadelphia	110	102	100	38	10	360	No	12	Ap.	24	July	No,	Req.
Graduate Hospital of the University of Pennsylvania	Philadelphia	75	75	35	68	95	348	(88)	16	Both	24	July	No	Req.
Hahnemann Medical College Hospital	Philadelphia	109	78	64	43	298	592	No	18	Ap.	12	July	No	Req.
Hospital of the Protestant Episcopal Church	Philadelphia	215	180	no	20	35	450	(89)	16	Ap.	24	Jan. & July	No	Req.
Hospital of the University of Pennsylvania [1]	Philadelphia	134	92	61	69	238	594	No	28	Ap.	24	July	No	Req.
Hospital of the Woman's Medical College [2]	Philadelphia	20	15	21	35	72	173	No	6	Ap.	12	July & Sept.	No	Req.
Jefferson Medical College Hospital	Philadelphia	137	135	58	48	310	688	No	28	Ex.	24	June	No	Req.
Jewish Hospital [1]	Philadelphia	79	50	56	23	215	423	(90)	18	Both	24	June	No	Req.
Lankenau Hospital	Philadelphia	141	72	30	no	55	298	No	8	Ap.	24	(1-e)	No	Req.
Memorial Hospital	Philadelphia	40	30	15	15	15	115	No	4	Ap.	12	July	No	Req.
Mercy Hospital [1] (col.)	Philadelphia	13	20	21	17	36	107	No	5	Ap.	12	July	$10	Req.
Methodist Episcopal Hospital	Philadelphia	yes	yes	yes	yes	yes	297	No	8	Ap.	12	July	No	Op.
Misericordia Hospital [1]	Philadelphia	65	56	36	60	69	286	No	10	Ap.	12	July	No	Req.
Mount Sinai Hospital	Philadelphia	yes	yes	yes	yes	yes	316	No	14	Ex.	12	June	No	Op.
Northeastern Hospital	Philadelphia	35	17	15	20	15	102	No	3	Ap.	12	July	$50	Req.
Pennsylvania Hospital	Philadelphia	107	113	125	no	215	560	(91)	18	Ap.	24	Varies	No	Req.
Philadelphia General Hospital [1]	Philadelphia	328	460	120	200	1,407	2,515	(90)	60	Both	24	July	No	Req.
Presbyterian Hospital	Philadelphia	90	66	41	57	171	425	No	11	Both	24	July	No	Req.
St. Agnes Hospital	Philadelphia	133	104	70	28	60	395	No	10	Ap.	12	July	No	Req.
St. Joseph's Hospital	Philadelphia	yes	yes	yes	yes	yes	221	(93)	6	Ap.	12	July	No	Req.
St. Luke's and Children's Hospital	Philadelphia	73	40	46	20	121	300	No	6	Ap.	12	July	No	Req.
St. Mary's Hospital	Philadelphia	107	38	40	25	42	252	No	7	Ap.	12	July	No	Req.
Temple University Hospital	Philadelphia	yes	yes	63	45	yes	438	(94)	16	Ap.	24	July	No	Req.
U. S. Naval Hospital	Philadelphia	192	409	no	no	183	784	(95)	12	Both	12	July	(b)	None
Woman's Hospital [2]	Philadelphia	16	16	36	yes	yes	144	No	6	Ap.	12	Sept.	No	Req.
Women's Homeopathic Hospital	Philadelphia	50	25	60	25	40	200	No	4	Ex.	12	July	$20	Req.
Allegheny General Hospital [1]	Pittsburgh	145	59	18	58	125	405	No	12	Ap.	12	July	No	Req.
Homeopathic Medical and Surgical Hospital and Dispensary [1]	Pittsburgh	yes	yes	yes	yes	yes	310	(96)	8	Ap.	12	July	No	Req.
Mercy Hospital [1]	Pittsburgh	335	137	57	96	50	675	(97)	20	Ap.	12	July	No	Req.
Montefiore Hospital [1]	Pittsburgh	yes	yes	yes	yes	yes	225	No	7	Both	12	July	$10	Req.
Passavant Hospital [1]	Pittsburgh	yes	yes	yes	yes	yes	150	(98)	5	Ap.	12	July	$10	Req.
Pittsburgh Hospital	Pittsburgh	28	28	28	15	101	200	No	5	Ap.	12	July	...	Req.
Presbyterian Hospital [1]	Pittsburgh	37	26	yes	21	yes	176	(99)	15	Ap.	12	July	No	Req.
St. Francis Hospital	Pittsburgh	100	100	30	25	300	555	(96)	14	Ap.	12	July	No	Req.
St. John's General Hospital	Pittsburgh	77	50	18	57	..	202	No	6	Ap.	12	July	$25	Req.
St. Joseph Hospital	Pittsburgh	42	34	8	18	38	140	No	5	Ap.	12	July	No	Req.
St. Margaret Memorial Hospital [1]	Pittsburgh	45	45	42	20	..	152	No	4	Ap.	12	July	No	Req.
South Side Hospital	Pittsburgh	63	40	10	25	87	225	No	6	Ap.	12	July	No	Req.
Western Pennsylvania Hospital [1]	Pittsburgh	233	185	59	47	127	651	No	18	Ap.	12	July	No	Req.
Pottsville Hospital [1]	Pottsville	36	28	12	10	54	140	No	4	Ap.	12	July	$25	Req.
Reading Hospital	Reading	97	56	41	36	38	268	No	8	Ap.	12	July	No	Req.
St. Joseph's Hospital	Reading	73	34	25	18	55	205	No	6	Ap.	12	July	No	Req.
Robert Packer Hospital	Sayre	144	71	23	37	..	275	No	8	Ap.	12	Jan. & July	No	Req.
Hahnemann Hospital	Scranton	28	28	12	12	45	125	No	4	Ap.	12	July	$13.50	Req.
Moses Taylor Hospital	Scranton	42	36	no	yes	22	100	(100)	3	Ap.	12	July	$27	Req.
Scranton State Hospital	Scranton	73	47	6	34	28	188	No	6	Ap.	12	July	$8.33	Req.
Uniontown Hospital	Uniontown	106	77	17	25	..	225	No	5	Ap.	12	July	$25	Req.
Washington Hospital	Washington	yes	yes	yes	yes	yes	166	No	5	Ap.	12	July	$25	Req.
Chester County Hospital	West Chester	yes	yes	yes	yes	yes	150	No	3	Ap.	12	July	$25	Req.
Mercy Hospital [1]	Wilkes-Barre	47	46	20	35	72	220	No	5	Ap.	12	July	(q)	Req.
Wilkes-Barre General Hospital	Wilkes-Barre	164	137	57	35	79	472	No	10	Ap.	12	July	No	Req.
Columbia Hospital [1]	Wilkinsburg	65	55	26	28	30	204	No	5	Ap.	12	July	$20	Req.
Williamsport Hospital [1]	Williamsport	90	69	88	19	..	275	No	5	Ap.	12	July	$35	Req.
Windber Hospital	Windber	57	35	10	yes	..	102	No	2	Ap.	12	June	No	Req.
York Hospital	York	57	56	32	24	21	190	No	6	Ap.	12	July	$35	Req.
RHODE ISLAND														
Memorial Hospital	Pawtucket	45	20	30	35	60	190	No	6	Ap.	12	(1-p)	No	Req.
Homeopathic Hospital	Providence	yes	yes	yes	yes	yes	200	No	4	Ap.	12	July	$50	Req.
Rhode Island Hospital	Providence	200	150	no	35	215	600	(101)	24	Ap.	24	Monthly	No	Req.
St. Joseph's Hospital	Providence	69	28	35	50	136	318	No	6	Ap.	12	July	No	Op.
SOUTH CAROLINA														
Roper Hospital	Charleston	82	74	30	48	66	300	No	16	Ap.	12	July	$10	Req.
Columbia Hospital	Columbia	yes	yes	yes	yes	yes	137	No	3	Ap.	12	July	$50 (g)	Req.
Greenville City Hospital	Greenville	yes	yes	17	16	yes	125	No	4	Ap.	12	July	$25	Req.
Spartanburg General Hospital	Spartanburg	yes	yes	yes	yes	yes	290	No	5	Ap.	12	July	$15 (o)	Req.
TENNESSEE														
Baroness Erlanger Hospital	Chattanooga	68	32	20	yes	126	246	(102)	10	Ap.	12	Jan. & July	$25	Req.
Knoxville General Hospital	Knoxville	yes	yes	yes	yes	yes	285	No	10	Ap.	12	(1-f)	$25	Req.
Baptist Memorial Hospital	Memphis	yes	yes	yes	yes	yes	400	No	12	Ap.	18	(1-e)	$25 (g)	None
Memphis General Hospital	Memphis	yes	yes	yes	yes	yes	425	No	18	Ap.	18	Monthly	$20	Req.
Methodist Hospital	Memphis	yes	yes	yes	yes	yes	185	No	2	Ap.	12	Varies	$25	None
St. Joseph's Hospital	Memphis	yes	yes	yes	yes	yes	296	No	4	Ap.	12	(1-e)	$40 (o)	Req.
George W. Hubbard Hospital (col.)	Nashville	60	40	19	23	20	162	No	6	Ap.	12	July	$15	Req.
Nashville General Hospital	Nashville	31	26	18	39	82	196	No	10	Ap.	12	July	$25	Req.
St. Thomas Hospital	Nashville	150	30	30	15	..	225	No	6	Ap.	12	July	$40	None
Vanderbilt University Hospital	Nashville	74	64	11	30	26	205	(103)	10	Ap.	12	July	$25	Req.
TEXAS														
Hotel Dieu Hospital	Beaumont	60	30	15	12	57	174	No	2	Ap.	12	July	$30	Req.
Baylor Hospital [1]	Dallas	168	58	43	33	39	344	No	11	Ap.	12	July	$25	Req.
Parkland Hospital	Dallas	yes	yes	yes	yes	yes	295	(104)	15	Ap.	12	Jan. & July	$25	Req.
St. Paul's Hospital	Dallas	130	60	60	20	40	310	No	8	Ap.	12	July	$25	Req.
El Paso City-County Hospital	El Paso	32	35	8	12	71	158	No	4	Ap.	12	July	$50	Req.
City-County Hospital	Fort Worth	yes	yes	yes	yes	yes	115	No	3	Ap.	12	July	$25	Req.
Harris Clinic-Hospital	Fort Worth	yes	yes	yes	yes	yes	100	No	2	Ap.	12	July	$25	Req.
St. Joseph's Hospital	Fort Worth	98	52	20	14	16	200	No	2	Ap.	12	July	$40	None
John Sealy Hospital [1]	Galveston	140	100	20	30	84	374	(105)	8	Ap.	12	June & July	No	Req.
St. Mary's Infirmary	Galveston	66	62	15	12	10	165	No	3	Ap.	12	June	$15	None
U. S. Marine Hospital	Galveston	50	50	no	no	25	125	(106)	..	Ap.	12	July	(b)	Req.
Hermann Hospital	Houston	93	67	12	15	12	199	No	5	Ap.	12	June	$25	Req.
Jefferson Davis Hospital	Houston	yes	yes	yes	yes	yes	165	No	10	Ap.	12	July	$45	Req.
Medical and Surgical Hospital	San Antonio	45	21	16	6	27	115	No	2	Ap.	12	July	$50	Req.
Robert B. Green Memorial Hospital	San Antonio	44	44	27	42	80	237	No	12	Ap.	12	July	$10	Req.
Santa Rosa Hospital	San Antonio	212	100	30	yes	44	386	No	6	Ap.	12	July	$30	Req.

Numerical and other references will be found on page 707.

Name of Hospital	Location	Number of Beds: Surgical	Medical	Obstetric	Pediatric	Other	Total	Affiliated—For What Service	Internships: Number	By Examination or Appointment	Length of Service in Months	Begin	Salary per Month	Dispensary Service
TEXAS—Continued														
Gulf, Colorado and Santa Fe Hospital	Temple	yes	yes	no	no	no	150	(107)	1	Ap.	12	July	$50	None
Kings Daughters Hospital	Temple	42	50	8	8	10	118	No	2	Ap.	12	July	$50	Req.
Scott and White Hospital	Temple	yes	yes	yes	yes	yes	200	(107)	6	Ap.	12	July	$50	None
Providence Sanitarium	Waco	78	44	16	12	..	150	No	2	Ap.	12	July	$25	Req.
UTAH														
Thomas D. Dee Memorial Hospital	Ogden	71	39	30	15	30	185	No	3	Ap.	12	Feb. & July	$25	Req.
Dr. W. H. Groves Latter-Day Saints Hosp.	Salt Lake City	273	65	34	20	32	424	No	8	Ap.	12	July	$25 (g)	Req.
St. Mark's Hospital	Salt Lake City	60	30	13	6	41	150	No	2	Ap.	12	July	$35	None
Salt Lake General Hospital	Salt Lake City	40	56	17	10	86	209	No	7	Ap.	12	July	$40	Req.
VERMONT														
Bishop DeGoesbriand Hospital [1]	Burlington	yes	yes	12	yes	yes	122	No	3	Ap.	12	July	$25	None
Mary Fletcher Hospital [1]	Burlington	yes	yes	30	22	yes	150	No	5	Ap.	12	July & Sept.	$50	Req.
VIRGINIA														
Hospital of St. Vincent de Paul	Norfolk	70	36	22	28	94	250	No	5	Ap.	12	July	$25	Req.
Norfolk Protestant Hospital	Norfolk	yes	yes	yes	yes	yes	200	No	4	Ap.	12	July	$25	Req.
U. S. Marine Hospital	Norfolk	yes	yes	no	no	yes	251	(108)	8	Ap.	12	July	(b)	Req.
Norfolk Naval Hospital	Portsmouth	yes	yes	no	no	yes	927	(109)	6	Both	12	July	(b)	None
Johnston-Willis Hospital [1]	Richmond	36	28	52	12	28	126	No	3	Ap.	12	July	$25	Req.
Medical College of Virginia, Hospital Division [1] (Memorial, Dooley, St. Philip and Crippled Children's Hospitals)	Richmond	yes	yes	yes	yes	yes	456	No	20	Ap.	12	July	$10	Req.
Stuart Circle Hospital	Richmond	yes	yes	yes	yes	yes	108	No	3	Ap.	12	July	$50	None
Jefferson Hospital	Roanoke	yes	yes	yes	yes	yes	119	No	3	Ap.	12	July	$40	Op.
University of Virginia Hospital [1]	University	yes	yes	yes	yes	yes	320	(110)	12	Ap.	12	July	No	Req.
WASHINGTON														
U. S. Naval Hospital	Bremerton	93	106	no	no	219	418	(111)	..	Ap.	12	July	(b)	None
Columbus Hospital	Seattle	106	59	35	yes	36	236	No	3	Ap.	12	July	$25	None
Harborview Hospital	Seattle	170	115	40	37	95	457	(112)	17	Ap.	18	Jan. & July	$30	Req.
Providence Hospital	Seattle	156	96	72	31	57	412	No	6	Ap.	12	July	$30	None
Seattle General Hospital	Seattle	60	20	20	no	20	120	(113)	3	Ap.	12	July	$30	Req.
Swedish Hospital	Seattle	yes	yes	yes	yes	yes	260	(114)	8	Ap.	12	July & Oct.	$30	Op.
Virginia Mason Hospital	Seattle	60	60	24	6	15	165	No	4	Ap.	12	June & Sept.	$30	Req.
Deaconess Hospital	Spokane	yes	yes	36	17	yes	257	No	2	Ap.	12	July	$50	Req.
Sacred Heart Hospital	Spokane	yes	yes	yes	yes	yes	350	(115)	3	Ap.	12	July	$50	Req.
St. Luke's Hospital [1]	Spokane	54	34	20	42	25	175	No	3	Ap.	12	July	$50	None
Northern Pacific Beneficial Association Hosp.	Tacoma	yes	yes	yes	yes	yes	116	(116)	2	Ap.	12	July	$25	Req.
Pierce County Hospital	Tacoma	42	119	yes	10	49	220	(117)	3	Ap.	12	July	$25	None
St. Joseph's Hospital	Tacoma	100	72	50	15	113	350	No	2	Ap.	12	July	$30 (v)	Req.
Tacoma General Hospital	Tacoma	91	33	35	14	36	209	No	4	Ap.	12	July	$30	None
WEST VIRGINIA														
Charleston General Hospital	Charleston	yes	yes	yes	yes	yes	165	(118)	5	Ap.	12	July	$25	Req.
Chesapeake and Ohio Railway Hospital	Huntington	54	59	6	6	..	125	(119)	3	Ap.	12	July	$50	Req.
Ohio Valley General Hospital	Wheeling	yes	yes	30	35	yes	270	No	6	Ap.	12	July	$40	Req.
Wheeling Hospital	Wheeling	185	50	25	40	25	325	No	4	Ap.	12	July	$40	Req.
WISCONSIN														
St. Elizabeth Hospital	Appleton	yes	yes	yes	yes	yes	250	No	2	Ap.	12	June & July	$25	None
St. Joseph's Hospital	Ashland	50	44	20	16	20	150	No	1	Ap.	12	July	$25	None
Luther Hospital	Eau Claire	57	46	24	yes	28	155	No	2	Ap.	12	July	$25 (g)	None
St. Agnes Hospital	Fond du Lac	88	57	34	33	38	250	No	3	Ap.	12	July	$25	None
Mercy Hospital	Janesville	yes	yes	50	15	yes	150	No	1	Ap.	12	July	$25	None
La Crosse Lutheran Hospital	La Crosse	70	50	20	yes	9	149	No	2	Ap.	12	July	$25	Op.
St. Francis Hospital	La Crosse	68	68	30	33	116	315	No	4	Ap.	12	July	$25	Op.
Madison General Hospital	Madison	80	35	20	12	27	174	No	4	Ap.	12	July	$50	None
Methodist Hospital	Madison	yes	yes	16	yes	16	120	No	3	Ap.	12	July	$50	Req.
St. Mary's Hospital	Madison	yes	yes	yes	yes	yes	180	No	4	Ap.	12	July	$42.50	Req.
State of Wisconsin General Hospital [1]	Madison	154	191	40	40	227	652	No	15	Ap.	12	July	No	Req.
St. Joseph's Hospital	Marshfield	55	55	15	20	30	175	No	3	Ap.	12	July	$20	Req.
Columbia Hospital	Milwaukee	yes	yes	yes	yes	yes	209	(120)	8	Ap.	24	July	$25	Req.
Evangelical Deaconess Hospital	Milwaukee	yes	yes	yes	no	yes	176	(121)	3	Ap.	12	June	$25	None
Milwaukee Hospital "The Passavant"	Milwaukee	yes	yes	34	36	yes	251	No	6	Ap.	12	July	$25	Req.
Misericordia Hospital	Milwaukee	50	25	40	35	..	150	No	2	Ap.	12	July	$25	None
Mount Sinai Hospital	Milwaukee	yes	yes	yes	no	yes	170	No	5	Ap.	12	July	$25	Req.
St. Joseph's Hospital [1]	Milwaukee	yes	yes	yes	yes	yes	395	No	6	Ap.	12	July	$25	Req.
St. Luke's Hospital	Milwaukee	yes	yes	24	yes	yes	117	No	2	Ap.	12	July	$25	None
St. Mary's Hospital	Milwaukee	136	40	32	18	40	266	No	5	Ap.	12	July	$25	None
Mercy and St. Mary's Hospitals	Oshkosh	yes	yes	24	16	yes	180	No	3	Ap.	12	July	$30	Op.
Milwaukee County General Hospital [1]	Wauwatosa	300	360	60	80	275	1,075	No	38	Ex.	12	July	$25	Req.
CANAL ZONE														
Gorgas Hospital	Ancon	300	400	25	80	75	880	No	8	Ap.	12	July	$115	None
HAWAII														
Queen's Hospital	Honolulu	yes	yes	yes	60	yes	300	(122)	7	Ap.	18	(1-c)	$72	Req.
PHILIPPINE ISLANDS														
Philippine General Hospital [1]	Manila	170	142	48	54	234	648	(123)	31	Ap. (w)	12	March	No	Req.
FOREIGN														
Peiping Union Medical College Hospital [1]	Peiping, China	89	120	70	yes	67	346	No	32 (x)	Ap.	12	July	$250 yr.	Req.
Shanghai Sanitarium and Clinic	Shanghai, China	30	120	15	20	25	210	No	2	Ap.	12	Sept.	$50	Req.

HOSPITALS APPROVED FOR INTERNSHIPS IN THE DOMINION OF CANADA

For the benefit of graduates of approved medical colleges who desire an internship in Canada, the Council on Medical Education and Hospitals of the American Medical Association has declared that hospitals which conform to the standards of the Department of Hospital Service of the Canadian Medical Association should be regarded as giving an internship equivalent in educational value to that offered by hospitals in the United States approved for intern training by the Council. It is understood, however, that this statement applies only to hospitals that are unqualifiedly "Approved" under the Canadian plan and does not apply to that group referred to as "Recommended."

The following list of hospitals, revised to Jan. 1, 1933, has been furnished by the Department of Hospital Service:

Name of Hospital	Location
Victoria General Hospital	Halifax, N. S.
St. John General Hospital	St. John, N. B.
Children's Memorial Hosp.	Montreal, Que.
Hospital St. Luc	Montreal, Que.
Montreal General Hospital	Montreal, Que.
Royal Victoria Hospital	Montreal, Que.
Ottawa Civic Hospital	Ottawa, Ont.
Kingston General Hospital	Kingston, Ont.
Grace Hospital	Toronto, Ont.
Hospital for Sick Children	Toronto, Ont.
St. Joseph's Hospital	Toronto, Ont.
St. Michael's Hospital	Toronto, Ont.
Toronto East General Hosp.	Toronto, Ont.
Toronto General Hospital	Toronto, Ont.
Toronto Western Hospital	Toronto, Ont.
Hamilton General Hospital	Hamilton, Ont.
St. Joseph's Hospital	London, Ont.
Victoria General Hospital	London, Ont.
Metropolitan General Hosp.	Walkerville, Ont.
Hotel Dieu of St. Joseph Hosp.	Windsor, Ont.
MacKellar General Hospital	Fort William, Ont.
Children's Hospital	Winnipeg, Man.
Winnipeg General Hospital	Winnipeg, Man.
St. Boniface Hospital	St. Boniface, Man.
Regina General Hospital	Regina, Sask.
Misericordia Hospital	Edmonton, Alta.
Royal Alexandra Hospital	Edmonton, Alta.
University of Alberta Hosp.	Edmonton, Alta.
St. Paul's Hospital	Vancouver, B. C.

Numerical and other references will be found on page 707.

NOTES

1. Women interns admitted.
2. Women interns only.
(a) In lieu of maintenance.
(b) Salary established by government pay tables according to rank and service.
(c) Bonus of $110.
(d) Bonus of $10 for satisfactory records.
(e) Bonus of $25.
(f) Bonus of $300.
(g) Bonus of $100.
(h) Bonus of $125.
(i) Bonus of $60.
(j) Bonus of $50.
(k) Bonus of $150.
(m) Subject to revision by common council.
(n) $10 per month; bonus of $180, subject to revision.
(o) Bonus of $120.
(p) $25 per month for first 6 months; $70 per month for last 6 months; bonus of $100.
(q) Bonus of $40.
(r) Bonus of $50 on completion of 2½ years internship.
(s) Bonus of $280.
(t) Bonus of $75.
(u) Bonus of $200.
(v) Bonus of $240.
(w) All internships reserved for the fifth year students of the College of Medicine, University of the Philippines.
(x) Appointments limited to persons speaking Mandarin Chinese.
(1-a) August, October and November.
(1-b) January, March, July, September and November.
(1-c) Quarterly.
(1-d) March, July and November.
(1-e) Six times a year.
(1-f) January, July and October.
(1-g) July, August and September.
(1-h) January, May and September.
(1-i) July, August, September and October.
(1-j) January, March, July and November.
(1-k) February, June and October.
(1-m) January, June and September.
(1-n) February, May, August and November.
(1-o) July, September and October.
(1-p) April, June and August.
(1-q) January, July and September.

Affiliation as Referred to in Column Headed: "Affiliated—For What Service."

3. Patton State Hospital, Patton, psychiatry.
4. Los Angeles Receiving Hospital, emergency service.
5. Children's Hospital, Los Angeles, and City Obstetrical Service.
6. Mt. Zion Hospital and St. Francis Hospital, San Francisco, obstetrics and gynecology.
7. Internship in these hospitals includes service in Highland Hospital, Oakland, Fairmont Hospital, San Leandro, Arroyo Sanatorium and Del Valle Preventorium, Livermore.
8. Woman's Hospital, Pasadena, obstetrics.
9. Mercy Hospital, San Diego, obstetrics.
10. Napa State Hospital, Imola, psychiatry.
11. St. Francis Hospital and the University of California Hospital, San Francisco, obstetrics and pediatrics.
12. San Francisco Hospital, obstetrics, gynecology and pediatrics.
13. Santa Barbara General Hospital, tuberculosis, psychiatry and contagious diseases.
14. St. Francis Hospital and Santa Barbara Cottage Hospital, metabolic diseases.
15. Boulder County Hospital, Boulder, general.
16. Colorado Psychopathic Hospital, Denver.
17. Emergency Hospital, Bridgeport.
18. Hartford Isolation Hospital.
19. Columbia Hospital for Women and Lying-In Asylum, Children's Hospital, and Mental Unit of St. Elizabeths Hospital, Washington, obstetrics, pediatrics and psychiatry.
20. Misericordia Hospital and Home for Infants, Chicago, obstetrics.
21. Winfield Sanatorium, Winfield, tuberculosis.
22. Chicago Maternity Center, obstetrics.
23. Grant Hospital, Chicago, obstetrics, gynecology and pediatrics.
24. Internship in the University of Chicago Clinics includes service in Albert Merritt Billings Hospital, Bobs Roberts Memorial Hospital, Nancy Adele McElwee Memorial and Gertrude Dunn Hicks Memorial Hospital and Max Epstein Clinic; also Chicago Lying-in Hospital.
25. Touro Infirmary and Charity Hospital, New Orleans, obstetrics, gynecology and pediatrics.
26. The Indiana University Hospitals include the Robert W. Long Hospital, the James Whitcomb Riley Hospital for Children, the William H. Coleman Hospital for Women and the Indiana Rotary Convalescent Home.
27. St. Bernard's Hospital, Council Bluffs, psychiatry.
28. Broadlawns, Des Moines, tuberculosis and contagious disease units.
29. Watkins Memorial Hospital, Lawrence.
30. Salvation Army Home and Hospital and Sedgwick County Hospital, Wichita, obstetrics and general.
31. Julius Marks Sanatorium, Lexington, tuberculosis.
32. Children's Free Hospital, Louisville, pediatrics.
33. Johns Hopkins Hospital, Baltimore, genito-urinary.
34. University Hospital and Sydenham Hospital, Baltimore, obstetrics, pediatrics and contagious diseases.
35. Boston City Hospital includes the Main Hospital, South Department for Contagious Diseases, Haymarket Square Relief Station, East Boston Relief Station and the Sanatorium Division for Tuberculosis.
36. Evangeline Booth Maternity Hospital and Home, Boston.
37. Boston City Hospital and Boston Floating Hospital, obstetrics and pediatrics.
38. Health Department Hospital, Springfield, isolation and tuberculosis.
39. Shriners Hospital for Crippled Children, Health Department Hospital, City Hospital and Wesson Maternity Hospital, Springfield, orthopedics, isolation and maternity.
40. Mercywood Sanitarium and University Hospital, Ann Arbor, psychiatry and pediatrics.
41. Michigan Mutual Hospital, Detroit, industrial surgery.
42. Herman Kiefer Hospital, Detroit.
43. Herman Kiefer Hospital and Children's Hospital, Detroit, obstetrics, contagious diseases and pediatrics.
44. St. Joseph's Retreat, Dearborn, psychiatry.
45. Children's Hospital, Detroit, pediatrics.
46. Sunshine Sanatorium and Municipal Isolation Hospital, Grand Rapids, tuberculosis and contagious diseases.
47. Michigan State Prison Hospital, Jackson, tuberculosis and surgery.
48. Gillette State Hospital for Crippled Children, St. Paul, orthopedics and pediatrics.
49. Glen Lake Sanatorium, Oak Terrace, tuberculosis.
50. Shriners Hospital for Crippled Children, Minneapolis, orthopedics.
51. St. Anthony's Hospital, St. Louis, obstetrics.
52. St. Louis Children's Hospital, Shriners Hospital for Crippled Children, St. Louis Maternity Hospital and City Isolation Hospital, St. Louis.
53. Jewish Sanatorium, Robertson, tuberculosis.
54. Robert Koch Hospital, City Isolation Hospital, City Sanitarium and City Infirmary, St. Louis.
55. St. Mary's Group of Hospitals includes St. Mary's Hospital, Firmin Desloge Hospital and Mt. St. Rose Sanatorium.
56. Municipal Hospital, Atlantic City, and Atlantic County Hospital for Mental Diseases, Northfield, contagious diseases and psychiatry.
57. St. Elizabeth Hospital, Elizabeth, obstetrics.
58. Margaret Hague Maternity Hospital, Jersey City, obstetrics.
59. Allenwood Sanatorium, Allenwood, tuberculosis.
60. "Bergen Pines" Bergen County Hospital, Ridgewood, tuberculosis and contagious diseases.
61. Anthony N. Brady Maternity Hospital, Albany.
62. Kingston Avenue Hospital, Brooklyn, contagious diseases.
63. Charles V. Chapin Hospital, Providence, pediatrics and contagious diseases.
64. St. Mary's Hospital and Providence Retreat, Buffalo, obstetrics and psychiatry.
65. Jewish Maternity Hospital, New York City.
66. Methodist Episcopal Hospital, Brooklyn, obstetrics and gynecology.
67. New York Ophthalmic Clinic, New York City.
68. John E. Berwind Clinic, New York City, obstetrics.
69. Schenectady City Hospital, contagious diseases.
70. St. Vincent's Hospital, Staten Island, obstetrics and pediatrics.
71. Syracuse Memorial Hospital, City Hospital, and Syracuse Psychopathic Hospital, obstetrics, contagious diseases and psychiatry.
72. Yonkers City Hospital for Communicable Diseases.
73. Forsyth County Tuberculosis Sanatorium, Winston-Salem.
74. Children's Hospital, Akron, pediatrics and orthopedics.
75. Children's Hospital, Cincinnati, pediatrics.
76. Christian R. Holmes Hospital, Hamilton County Tuberculosis Sanatorium, and Hamilton County Home and Chronic Disease Hospital, Cincinnati.
77. St. Mary Hospital, Quincy, Ill., obstetrics.
78. St. Anne's Maternity Hospital, Cleveland.
79. City Hospital, Cleveland, psychiatry and contagious diseases.
80. University Hospitals of Cleveland include the Lakeside Hospital, Maternity Hospital, Babies and Childrens Hospital, Cleveland, and the Rainbow Hospital for Crippled and Convalescent Children, South Euclid.
81. Mt. Sinai Hospital, Cleveland, gynecology.
82. Children's Hospital, Columbus, pediatrics.
83. Starling-Loving University Hospital and Children's Hospital, Columbus, obstetrics and pediatrics.
84. Lima State Hospital and District Tuberculosis Hospital, Lima.
85. Shriners Hospital for Crippled Children, Portland.
86. Doernbecher Memorial Hospital, Portland, pediatrics.
87. Allentown State Hospital, Allentown, psychiatry.
88. Hospital of the University of Pennsylvania, Philadelphia, obstetrics.
89. Kensington Hospital for Women, Philadelphia, obstetrics.
90. Philadelphia Hospital for Contagious Diseases.
91. Children's Hospital, Philadelphia, pediatrics.
92. Columbia Hospital for Women and Lying-In Asylum, Washington, obstetrics.
93. St. Vincent's Hospital for Women and Children, Philadelphia, obstetrics.
94. Shriners Hospital for Crippled Children and Philadelphia Hospital for Contagious Diseases.
95. Misericordia Hospital, Philadelphia, obstetrics and pediatrics.
96. Municipal Hospital for Contagious Diseases, Pittsburgh.
97. Rosalia Foundling and Maternity Hospital and Municipal Hospital for Contagious Diseases, Pittsburgh.
98. Tuberculosis League Hospital, Pittsburgh.
99. Elizabeth Steel Magee Hospital, Children's Hospital and Eye and Ear Hospital, Pittsburgh, obstetrics, gynecology, pediatrics and eye and ear.
100. Pittston Hospital, Pittston, obstetrics.
101. Providence Lying-In Hospital.
102. Children's Hospital and Pine Breeze Sanatorium, Chattanooga, pediatrics and tuberculosis.
103. Willard Parker Hospital, New York City, contagious diseases.
104. Woodlawn Sanatorium and Bradford Memorial Hospital for Babies, Dallas, tuberculosis and pediatrics.
105. Galveston State Psychopathic Hospital.
106. John Sealy Hospital, Galveston, obstetrics and pediatrics.
107. Gulf, Colorado and Santa Fe Hospital and the Scott and White Hospital affiliated furnish one internship.
108. Norfolk Protestant Hospital, Florence Crittenton Home and Kings Daughters Clinic, Norfolk, obstetrics and pediatrics.
109. Kings Daughters Hospital, Portsmouth, obstetrics, gynecology and pediatrics.
110. Blue Ridge Sanatorium, Charlottesville, tuberculosis.
111. Children's Orthopedic Hospital and Harborview Hospital, Seattle, pediatrics and obstetrics.
112. Includes service in the Morningside Sanitarium and Georgetown Hospital, Seattle.
113. Children's Orthopedic Hospital and Florence Crittenton Home, Seattle, orthopedics, obstetrics and pediatrics.
114. Children's Orthopedic Hospital, Seattle, and Firland Sanatorium, Richmond Highlands, pediatrics, orthopedics, tuberculosis and contagious diseases.
115. Edgecliff Sanatorium, Spokane, tuberculosis.
116. Pierce County Hospital, Tacoma, obstetrics.
117. Northern Pacific Beneficial Association Hospital, Tacoma, obstetrics.
118. Hill Crest Sanatorium, Charleston, tuberculosis.
119. Salvation Army Hospital, Huntington.
120. Milwaukee Children's Hospital and South View Isolation Hospital, Milwaukee.
121. Milwaukee Children's Hospital, pediatrics.
122. Kauikeolani Children's Hospital, Honolulu, pediatrics.
123. San Lazaro Hospital, Manila, contagious diseases.
124. Boston State Hospital and Worcester State Hospital, psychiatry.
125. Children's Hospital, Washington, D. C., pediatrics.
126. Internship in the Jersey City Medical Center includes service in Jersey City Hospital, Margaret Hague Maternity Hospital and Jersey City Hospital for Contagious Diseases.
127. Babies' Hospital, Newark, pediatrics.

HOSPITALS APPROVED FOR RESIDENCIES IN SPECIALTIES

By the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago

Revised to Aug. 26, 1933

The following hospitals are considered in position to furnish acceptable residencies in the several specialties designated, for graduates who have already had a general internship or its equivalent in practice.

	Location	Capacity
Anesthesia		
Los Angeles County General Hospital (#1)	Los Angeles	1,524
Indianapolis City Hospital	Indianapolis	608
Indiana University Hospitals	Indianapolis	482
Louisville City Hospital	Louisville, Ky.	440
Jersey City Medical Center	Jersey City	1,200
Newark City Hospital	Newark, N. J.	781
Grasslands Hospital	Valhalla, N. Y.	903
Cincinnati General Hospital	Cincinnati	925
Memphis General Hospital	Memphis, Tenn.	425
State of Wisconsin General Hospital	Madison	652
Cardiology		
Indiana University Hospitals [2]	Indianapolis	482
Irvington House	Irvington, N. Y.	22
St. Francis Hospital	Pittsburgh	555
Contagious Diseases		
Municipal Contagious Disease Hospital	Chicago	428
Boston City Hospital	Boston	2,285
Belmont Hospital	Worcester, Mass.	275
Herman Kiefer Hospital	Detroit	1,400
Essex County Hosp. for Contag. Diseases	Belleville, N. J.	560
Kingston Avenue Hospital	Brooklyn	410
City Hospital	Cleveland	1,510
Charles V. Chapin Hospital	Providence, R. I.	265
South View Isolation Hospital	Milwaukee	250
Dermatology and Syphilology		
Los Angeles County General Hospital (#1)	Los Angeles	1,524
Cook County Hospital [1]	Chicago	3,415
St. Luke's Hospital	Chicago	659
University of Chicago Clinics	Chicago	281
Massachusetts General Hospital	Boston	405
University Hospital	Ann Arbor, Mich.	1,269
Buffalo City Hospital	Buffalo	863
Metropolitan Hospital	New York	1,620
Stuyvesant Square Hospital	New York	100
City Hospital	Cleveland	1,510
University Hospitals of Cleveland	Cleveland	843
University of Virginia Hospital	University	320
Epilepsy		
Monson State Hospital	Palmer, Mass.	1,171
New Jersey State Village for Epileptics	Skillman, N. J.	1,045
Fractures		
Cook County Hospital	Chicago	3,415
Gynecology		
Hillman Hospital	Birmingham, Ala.	464
Los Angeles County General Hospital (#1)	Los Angeles	1,524
White Memorial Hospital	Los Angeles	132
San Francisco Hospital	San Francisco	1,437
Stanford University Hospitals	San Francisco	340
University of California Hospital	San Francisco	287
New Haven Hospital	New Haven	504
Columbia Hospital for Women and Lying-In Asylum	Washington, D. C.	199
Gallinger Municipal Hospital	Washington, D. C.	664
University Hospital	Augusta, Ga.	287
Chicago Lying-in Hospital and Dispensary	Chicago	320
Passavant Memorial Hospital	Chicago	213
Research and Educational Hospital, University of Illinois	Chicago	396
St. Luke's Hospital	Chicago	659
University of Chicago Clinics	Chicago	281
University Hospitals	Iowa City, Iowa	1,008
Louisville City Hospital	Louisville, Ky.	440
Charity Hospital	New Orleans	1,809
Touro Infirmary	New Orleans	373
Johns Hopkins Hospital	Baltimore	909
Mercy Hospital	Baltimore	200
St. Joseph's Hospital	Baltimore	200
University of Maryland Hospital	Baltimore	275
West Baltimore General Hospital	Baltimore	200
Massachusetts Memorial Hospitals	Boston	331
University Hospital	Ann Arbor, Mich.	1,269
City of Detroit Receiving Hospital	Detroit	700
Grace Hospital	Detroit	354
Harper Hospital	Detroit	750
Herman Kiefer Hospital	Detroit	1,400
Woman's Hospital	Detroit	312
Minneapolis General Hospital [2]	Minneapolis	653
University Hospitals [2]	Minneapolis	405
Ancker Hospital [2]	St. Paul	1,050
Barnes Hospital	St. Louis	270
Jewish Hospital	St. Louis	290
St. Louis City Hospital	St. Louis	970
St. Louis Maternity Hospital	St. Louis	208
St. Mary's Group of Hospitals	St. Louis	743
Jersey City Medical Center	Jersey City	1,200
Albany Hospital	Albany, N. Y.	500
Kings County Hospital	Brooklyn	1,660
Long Island College Hospital	Brooklyn	480
Buffalo City Hospital	Buffalo	863
Buffalo General Hospital	Buffalo	460
Bellevue Hospital	New York	2,069
Mount Sinai Hospital	New York	704
Sloane Hospital for Women	New York	325
Woman's Hospital	New York	290
Rochester General Hospital	Rochester, N. Y.	335
Strong Memorial and Rochester Municipal Hospitals	Rochester, N. Y.	560
Duke Hospital	Durham, N. C.	456
Cincinnati General Hospital	Cincinnati	925
Mount Sinai Hospital	Cleveland	270
St. Ann's Maternity Hospital	Cleveland	118
St. Luke's Hospital	Cleveland	394
University Hospitals of Cleveland	Cleveland	843
Hospital of the University of Pennsylvania	Philadelphia	594
Kensington Hospital for Women	Philadelphia	105
Pennsylvania Hospital	Philadelphia	560
Philadelphia General Hospital	Philadelphia	2,515
Elizabeth Steele Magee Hospital	Pittsburgh	407
Nashville General Hospital	Nashville, Tenn.	196
Vanderbilt University Hospital	Nashville, Tenn.	205
Baylor Hospital	Dallas, Texas	341
University of Virginia Hospital	University, Va.	320
State of Wisconsin General Hospital	Madison, Wis.	652
Hernia		
New York Society for the Relief of the Ruptured and Crippled	New York	295
Industrial Surgery		
Golden State Hospital	Los Angeles	73
Indianapolis City Hospital	Indianapolis	608
Leprosy		
U. S. Marine Hospital (National Leprosarium)	Carville, La.	425
Malignant Diseases		
Grady Hospital, Albert Steiner Clinic for Cancer and Allied Disease Unit	Atlanta, Ga.	20
Collis P. Huntington Memorial Hospital	Boston	25
Pondville Hospital	Wrentham, Mass.	115
Memorial Hospital for the Treatment of Cancer and Allied Diseases	New York	111
New York City Cancer Institute Hospital	New York	202
Jeanes Hospital	Philadelphia	72
Medicine		
Hillman Hospital	Birmingham, Ala.	464
Cedars of Lebanon Hospital	Los Angeles	200
Los Angeles County General Hospital (#1)	Los Angeles	1,524
White Memorial Hospital	Los Angeles	132
Las Encinas Sanitarium	Pasadena, Calif.	80
Hospital for Children	San Francisco	300
St. Luke's Hospital	San Francisco	225
San Francisco Hospital	San Francisco	1,437
Stanford University Hospitals	San Francisco	340
University of California Hospital	San Francisco	287
Santa Clara County Hospital	San Jose, Calif.	472
Colorado General Hospital	Denver	178
New Haven Hospital	New Haven, Conn.	504
Gallinger Municipal Hospital	Washington, D. C.	664
Grady Hospital, Emory University Division (Colored Unit)	Atlanta, Ga.	266
University Hospital	Augusta, Ga.	287
City of Chicago Municipal Tuberculosis Sanit.	Chicago	1,240
Cook County Hospital	Chicago	3,415
Passavant Memorial Hospital	Chicago	213
Presbyterian Hospital	Chicago	453
Research and Educational Hospital, University of Illinois	Chicago	396
St. Luke's Hospital	Chicago	659
University of Chicago Clinics	Chicago	281
Evanston Hospital	Evanston, Ill.	271
West Suburban Hospital	Oak Park, Ill.	427
Indianapolis City Hospital	Indianapolis	608
Indiana University Hospitals	Indianapolis	482
University Hospitals	Iowa City	1,008
Louisville City Hospital	Louisville, Ky.	440
Charity Hospital	New Orleans	1,809
Touro Infirmary	New Orleans	373
Baltimore City Hospitals (General)	Baltimore	756
Johns Hopkins Hospital	Baltimore	909
Mercy Hospital	Baltimore	200
St. Agnes Hospital	Baltimore	211
Sinai Hospital	Baltimore	200
South Baltimore General Hospital	Baltimore	115
Union Memorial Hospital	Baltimore	337
University of Maryland Hospital	Baltimore	275
West Baltimore General Hospital	Baltimore	200
Beth Israel Hospital	Boston	202
Boston City Hospital	Boston	2,285
Long Island Hospital	Boston	550
Massachusetts General Hospital	Boston	405
Massachusetts Memorial Hospitals	Boston	331
Peter Bent Brigham Hospital	Boston	247
Truesdale Hospital	Fall River, Mass.	125
University Hospital	Ann Arbor, Mich.	1,269
City of Detroit Receiving Hospital	Detroit	700
Grace Hospital	Detroit	354
Harper Hospital	Detroit	750
Henry Ford Hospital	Detroit	610
Jefferson Clinic and Diagnostic Hospital	Detroit	62
Hurley Hospital	Flint, Mich.	435
Minneapolis General Hospital [2]	Minneapolis	653
University Hospitals [2]	Minneapolis	405
Ancker Hospital	St. Paul	1,050
Barnes Hospital	St. Louis	270
Jewish Hospital	St. Louis	290
St. Louis City Hospital	St. Louis	970
St. Louis City Hospital No. 2 (col.)	St. Louis	470
St. Mary's Group of Hospitals	St. Louis	743
Jersey City Medical Center	Jersey City	1,200
Albany Hospital	Albany, N. Y.	500
Cumberland Hospital	Brooklyn	321
Jewish Hospital	Brooklyn	674
Kings County Hospital	Brooklyn	1,660
Long Island College Hospital	Brooklyn	480
Buffalo City Hospital	Buffalo	863

	Location	Capacity
Buffalo General Hospital	Buffalo	460
Millard Fillmore Hospital	Buffalo	301
Clifton Springs Sanitarium and Clinic	Clifton Springs, N.Y.	458
Charles S. Wilson Memorial Hospital	Johnson City, N.Y.	200
Metropolitan Life Insurance Company Sanat.	Mt. McGregor, N.Y.	360
Bellevue Hospital	New York	2,069
Beth Israel Hospital	New York	343
Fifth Avenue Hospital	New York	300
Lenox Hill Hospital	New York	400
Metropolitan Hospital	New York	1,620
Montefiore Hospital for Chronic Diseases	New York	703
Mount Sinai Hospital	New York	704
New York Post-Graduate Medical School and Hospital	New York	415
Presbyterian Hospital	New York	554
Genesee Hospital	Rochester, N. Y.	214
Rochester General Hospital	Rochester, N. Y.	335
Strong Memorial and Rochester Municipal Hospitals	Rochester, N. Y.	560
Hospital of the Good Shepherd	Syracuse, N. Y.	269
Grasslands Hospital	Valhalla, N. Y.	903
Duke Hospital	Durham, N. C.	456
City Hospital	Akron, Ohio	350
Cincinnati General Hospital	Cincinnati	925
Good Samaritan Hospital	Cincinnati	535
Jewish Hospital	Cincinnati	272
Charity Hospital	Cleveland	307
City Hospital	Cleveland	1,510
Mount Sinai Hospital	Cleveland	270
St. Alexis Hospital	Cleveland	220
St. John's Hospital	Cleveland	214
St. Luke's Hospital	Cleveland	394
University Hospitals of Cleveland	Cleveland	843
Starling-Loving University Hospital	Columbus, Ohio	276
Miami Valley Hospital	Dayton, Ohio	383
State University Hospitals	Oklahoma City	462
Multnomah Hospital	Portland, Ore.	300
Graduate Hospital of the University of Pennsylvania	Philadelphia	348
Hospital of the University of Pennsylvania	Philadelphia	594
Philadelphia General Hospital	Philadelphia	2,515
Allegheny General Hospital	Pittsburgh	405
Mercy Hospital	Pittsburgh	675
St. Francis Hospital	Pittsburgh	555
Western Pennsylvania Hospital	Pittsburgh	651
Knoxville General Hospital	Knoxville, Tenn.	285
Memphis General Hospital	Memphis, Tenn.	425
Nashville General Hospital	Nashville, Tenn.	196
Vanderbilt University Hospital	Nashville, Tenn.	205
Baylor Hospital	Dallas, Texas	341
Parkland Hospital	Dallas, Texas	295
Hermann Hospital	Houston, Texas	199
Medical College of Virginia Hospital Division	Richmond, Va.	456
University of Virginia Hospital	University, Va.	320
State of Wisconsin General Hospital	Madison, Wis.	652
St. Joseph's Hospital	Milwaukee	395
Mental Deficiencies		
Lincoln State School and Colony	Lincoln, Ill.	3,560
Michigan Home and Training School	Lapeer, Mich.	3,713
Rome State School	Rome, N. Y.	3,060
Letchworth Village	Thiells, N. Y.	2,850
Pennhurst State School	Pennhurst, Pa.	1,624
Polk State School	Polk, Pa.	2,700
Metabolic Diseases		
Physiatric Institute	Morristown, N. J.	75
Neurology		
Massachusetts General Hospital	Boston	405
Kings County Hospital	Brooklyn	1,660
Bellevue Hospital	New York	2,069
Central Neurological Hospital	New York	470
Montefiore Hospital for Chronic Diseases	New York	703
Neurological Institute of New York	New York	211
Neurosurgery		
Medical College of Virginia Hospital Division	Richmond, Va.	456
Obstetrics		
Hillman Hospital	Birmingham, Ala.	464
Los Angeles County General Hospital (#1)	Los Angeles	1,524
White Memorial Hospital	Los Angeles	132
San Francisco Hospital	San Francisco	1,437
Stanford University Hospitals	San Francisco	340
University of California Hospital	San Francisco	287
New Haven Hospital	New Haven, Conn.	504
Columbia Hospital for Women and Lying-In Asylum	Washington, D. C.	199
Gallinger Municipal Hospital	Washington, D. C.	664
Grady Hospital, Emory University Division (Colored Unit)	Atlanta, Ga.	266
University Hospital	Augusta, Ga.	287
Chicago Lying-in Hospital and Dispensary	Chicago	320
Cook County Hospital	Chicago	3,415
Research and Educational Hospital, University of Illinois	Chicago	396
St. Luke's Hospital	Chicago	659
University of Chicago Clinics	Chicago	281
Indiana University Hospitals [3]	Indianapolis	482
University Hospitals	Iowa City	1,008
Louisville City Hospital	Louisville, Ky.	440
Charity Hospital	New Orleans	1,809
Touro Infirmary	New Orleans	373
Johns Hopkins Hospital	Baltimore	909
Mercy Hospital	Baltimore	290
St. Joseph's Hospital	Baltimore	290
University of Maryland Hospital	Baltimore	275
West Baltimore General Hospital	Baltimore	200
Massachusetts Memorial Hospitals	Boston	331
University Hospital	Ann Arbor, Mich.	1,269
Grace Hospital	Detroit	354
Harper Hospital	Detroit	750
Herman Kiefer Hospital	Detroit	1,400
Woman's Hospital	Detroit	312
Minneapolis General Hospital [2]	Minneapolis	653
University Hospitals [2]	Minneapolis	405
Ancker Hospital [2]	St. Paul	1,050
Barnes Hospital	St. Louis	270
Jewish Hospital	St. Louis	290
St. Louis City Hospital	St. Louis	970
St. Louis Maternity Hospital	St. Louis	208
St. Mary's Group of Hospitals	St. Louis	743
Jersey City Medical Center	Jersey City	1,200
Albany Hospital	Albany, N. Y.	500
Cumberland Hospital	Brooklyn	321
Jewish Hospital	Brooklyn	674
Kings County Hospital	Brooklyn	1,660
Long Island College Hospital	Brooklyn	480
Methodist Episcopal Hospital	Brooklyn	417
Buffalo City Hospital	Buffalo	863
Buffalo General Hospital	Buffalo	460
Bellevue Hospital	New York	2,069
Metropolitan Hospital	New York	1,620
New York Hospital	New York	617
New York Nursery and Child's Hospital	New York	256
Sloane Hospital for Women	New York	325
Woman's Hospital	New York	290
Rochester General Hospital	Rochester, N. Y.	335
Strong Memorial and Rochester Municipal Hospitals	Rochester, N. Y.	560
Duke Hospital	Durham, N. C.	456
Cincinnati General Hospital	Cincinnati	925
Mount Sinai Hospital	Cleveland	270
St. Ann's Maternity Hospital	Cleveland	118
St. John's Hospital	Cleveland	214
St. Luke's Hospital	Cleveland	394
University Hospitals of Cleveland	Cleveland	843
Starling-Loving University Hospital	Columbus, Ohio	276
Miami Valley Hospital	Dayton, Ohio	383
Women's and Children's Hospital	Toledo, Ohio	180
Multnomah Hospital	Portland, Ore.	300
Hospital of the University of Pennsylvania	Philadelphia	594
Kensington Hospital for Women	Philadelphia	105
Pennsylvania Hospital	Philadelphia	560
Philadelphia General Hospital	Philadelphia	2,515
Elizabeth Steel Magee Hospital	Pittsburgh	407
Memphis General Hospital	Memphis, Tenn.	425
Nashville General Hospital	Nashville, Tenn.	196
Vanderbilt University Hospital	Nashville, Tenn.	205
Baylor Hospital	Dallas, Texas	341
University of Virginia Hospital	University, Va.	320
State of Wisconsin General Hospital	Madison, Wis.	652
Milwaukee County General Hospital	Wauwatosa, Wis.	1,075
Ophthalmology		
Los Angeles County General Hospital (#1)	Los Angeles	1,524
White Memorial Hospital	Los Angeles	132
Stanford University Hospitals	San Francisco	340
Episcopal Eye, Ear and Throat Hospital	Washington, D. C.	100
Grady Hospital, Emory University Division (Colored Unit)	Atlanta, Ga.	266
Cook County Hospital	Chicago	3,415
Illinois Eye and Ear Infirmary	Chicago	185
Passavant Memorial Hospital	Chicago	213
Presbyterian Hospital	Chicago	453
Research and Educational Hospital, University of Illinois	Chicago	396
St. Luke's Hospital	Chicago	659
University of Chicago Clinics	Chicago	281
Indianapolis City Hospital	Indianapolis	608
Indiana University Hospitals	Indianapolis	482
University Hospitals	Iowa City	1,008
Charity Hospital	New Orleans	1,809
Touro Infirmary	New Orleans	373
Baltimore Eye, Ear and Throat Charity Hospital	Baltimore	60
Johns Hopkins Hospital	Baltimore	909
Mercy Hospital	Baltimore	290
Massachusetts Eye and Ear Infirmary	Boston	231
University Hospital	Ann Arbor, Mich.	1,269
City of Detroit Receiving Hospital	Detroit	700
Grace Hospital	Detroit	354
Harper Hospital	Detroit	750
Minneapolis General Hospital [2]	Minneapolis	653
University Hospitals [2]	Minneapolis	405
Ancker Hospital	St. Paul	1,050
Barnes Hospital	St. Louis	270
Jersey City Medical Center	Jersey City	1,200
Newark City Hospital	Newark, N. J.	781
Kings County Hospital	Brooklyn	1,660
Long Island College Hospital	Brooklyn	480
Buffalo City Hospital	Buffalo	863
Bellevue Hospital	New York	2,069
Harlem Eye and Ear Hospital	New York	50
Herman Knapp Memorial Eye Hospital	New York	50
Manhattan Eye, Ear and Throat Hospital	New York	214
Mount Sinai Hospital	New York	704
New York Eye and Ear Infirmary	New York	175
Presbyterian Hospital	New York	554
Grasslands Hospital	Valhalla, N. Y.	903
Duke Hospital	Durham, N. C.	456
Davis Hospital	Statesville, N. C.	132
Cincinnati General Hospital	Cincinnati	925
University Hospitals of Cleveland	Cleveland	843
State University Hospitals	Oklahoma City	462
Wills Hospital	Philadelphia	200
Eye and Ear Hospital	Pittsburgh	55
Memphis Eye, Ear, Nose and Throat Hospital	Memphis, Tenn.	69
Medical College of Virginia Hospital Division	Richmond, Va.	456
University of Virginia Hospital	University, Va.	320
State of Wisconsin General Hospital	Madison, Wis.	652
Milwaukee County General Hospital	Wauwatosa, Wis.	1,075
Orthopedics		
Hillman Hospital	Birmingham, Ala.	464
Children's Hospital	Los Angeles	180
Orthopaedic Hospital-School	Los Angeles	85

	Location	Capacity
Shriners Hospital for Crippled Children	San Francisco	60
University of California Hospital	San Francisco	287
Cook County Hospital	Chicago	3,415
Research and Educational Hospital, University of Illinois	Chicago	396
St. Luke's Hospital	Chicago	659
University of Chicago Clinics	Chicago	281
Indiana University Hospitals	Indianapolis	482
University Hospitals	Iowa City	1,008
Shriners Hospital for Crippled Children	Shreveport, La	60
Johns Hopkins Hospital	Baltimore	909
Boston City Hospital	Boston	2,285
Children's and Infants' Hospitals	Boston	347
Massachusetts General Hospital	Boston	405
Memorial Hospital	Worcester, Mass.	215
City of Detroit Receiving Hospital	Detroit	700
Gillette State Hospital for Crippled Children	St. Paul	250
Shriners Hospital for Crippled Children	St. Louis	120
Jersey City Medical Center	Jersey City	1,200
Long Island College Hospital	Brooklyn	480
Bellevue Hospital	New York	2,069
Hospital for Joint Diseases	New York	355
New York Orthopedic Dispensary and Hosp.	New York	132
New York Society for the Relief of the Ruptured and Crippled	New York	295
Rochester General Hospital	Rochester, N. Y.	335
New York Reconstruction Home	West Haverstraw, N. Y.	170
Cincinnati General Hospital	Cincinnati	925
Mount Sinai Hospital	Cleveland	270
State University Hospitals	Oklahoma City	462
Shriners Hospital for Crippled Children	Portland, Ore.	50
Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases	Philadelphia	144
Allegheny General Hospital	Pittsburgh	405
Children's Hospital	Pittsburgh	196
Texas Scottish Rite Hospital for Crippled Children	Dallas, Texas	35
University of Virginia Hospital	University, Va.	320
State of Wisconsin General Hospital	Madison, Wis.	652

Otolaryngology

Hillman Hospital	Birmingham, Ala.	464
Children's Hospital	Los Angeles	180
Los Angeles County General Hospital (#1)	Los Angeles	1,524
White Memorial Hospital	Los Angeles	132
San Francisco Hospital	San Francisco	1,437
Stanford University Hospitals	San Francisco	340
Episcopal Eye, Ear and Throat Hosptial	Washington, D. C.	100
Grady Hospital, Emory University Division (Colored Unit)	Atlanta, Ga.	266
Cook County Hospital	Chicago	3,415
Illinois Eye and Ear Infirmary	Chicago	185
Passavant Memorial Hospital	Chicago	213
Presbyterian Hospital	Chicago	453
Research and Educational Hospital, University of Illinois	Chicago	396
St. Luke's Hospital	Chicago	659
University of Chicago Clinics	Chicago	281
Indianapolis City Hospital	Indianapolis	608
Indiana University Hospitals	Indianapolis	482
University Hospitals	Iowa City	1,008
Charity Hospital	New Orleans	1,809
Touro Infirmary	New Orleans	373
Baltimore Eye, Ear and Throat Charity Hospital	Baltimore	60
Johns Hopkins Hospital	Baltimore	909
Mercy Hospital	Baltimore	290
Beth Israel Hospital	Boston	202
Massachusetts Eye and Ear Infirmary	Boston	231
University Hospital	Ann Arbor, Mich.	1,269
City of Detroit Receiving Hospital	Detroit	700
Grace Hospital	Detroit	354
Minneapolis General Hospital [2]	Minneapolis	653
University Hospitals [2]	Minneapolis	405
Ancker Hospital	St. Paul	1,050
Barnes Hospital	St. Louis	270
St. Louis City Hospital	St. Louis	970
Jersey City Medical Center	Jersey City	1,200
Newark City Hospital	Newark, N. J.	781
Kings County Hospital	Brooklyn	1,660
Long Island College Hospital	Brooklyn	480
Buffalo City Hospital	Buffalo	863
Bellevue Hospital	New York	2,069
Harlem Eye and Ear Hospital	New York	50
Manhattan Eye, Ear and Throat Hospital	New York	214
Mount Sinai Hospital	New York	704
New York Eye and Ear Infirmary	New York	175
Grasslands Hospital	Valhalla, N. Y.	903
Duke Hospital	Durham, N. C.	456
Davis Hospital	Statesville, N. C.	132
Cincinnati General Hospital	Cincinnati	925
Good Samaritan Hospital	Cincinnati	535
St. Luke's Hospital	Cleveland	394
University Hospitals of Cleveland	Cleveland	843
State University Hospitals	Oklahoma City	462
Doernbecher Memorial Hospital	Portland, Ore.	75
Eye and Ear Hospital	Pittsburgh	55
Memphis Eye, Ear, Nose and Throat Hospital	Memphis, Tenn.	69
Medical College of Virginia Hospital Division	Richmond, Va.	456
University of Virginia Hospital	University, Va.	320
State of Wisconsin General Hospital	Madison, Wis.	652
Milwaukee County General Hospital	Wauwatosa, Wis.	1,075

Pathology

Hillman Hospital	Birmingham, Ala.	464
Los Angeles County General Hospital (#1)	Los Angeles	1,524
White Memorial Hospital	Los Angeles	132
University of California Hospital	San Francisco	287
New Haven Hospital	New Haven, Conn.	504
Gallinger Municipal Hospital	Washington, D. C.	664
Children's Memorial Hospital	Chicago	264
Cook County Hospital	Chicago	3,415
Michael Reese Hospital	Chicago	654
St. Luke's Hospital	Chicago	659
Indiana University Hospitals	Indianapolis	482
University Hospitals	Iowa City	1,008
Louisville City Hospital	Louisville, Ky.	440
Charity Hospital	New Orleans	1,809
Touro Infirmary	New Orleans	373
Baltimore City Hospitals (General)	Baltimore	756
Johns Hopkins Hospital	Baltimore	909
Beth Israel Hospital	Boston	202
Boston City Hospital	Boston	2,285
Children's and Infants' Hospitals	Boston	347
Long Island Hospital	Boston	530
Massachusetts General Hospital	Boston	405
Massachusetts Memorial Hospitals	Boston	331
New England Deaconess Hospital	Boston	250
Peter Bent Brigham Hospital	Boston	247
University Hospital	Ann Arbor, Mich.	1,269
City of Detroit Receiving Hospital	Detroit	700
Harper Hospital	Detroit	750
Ancker Hospital	St. Paul	1,050
Barnes Hospital	St. Louis	270
St. Louis City Hospital	St. Louis	970
Jersey City Medical Center	Jersey City	1,200
Newark Beth Israel Hospital	Newark, N. J.	414
Albany Hospital	Albany, N. Y.	500
Buffalo City Hospital	Buffalo	863
Buffalo General Hospital	Buffalo	460
Hospital for Joint Diseases	New York	355
Montefiore Hospital for Chronic Diseases	New York	703
Mount Sinai Hospital	New York	704
Presbyterian Hospital	New York	554
St. Luke's Hospital	New York	526
Willard Parker Hospital	New York	424
Strong Memorial and Rochester Municipal Hospitals	Rochester, N. Y.	560
Grasslands Hospital	Valhalla, N. Y.	903
Duke Hospital	Durham, N. C.	456
Cincinnati General Hospital	Cincinnati	925
City Hospital	Cleveland	1,510
University Hospitals of Cleveland	Cleveland	843
Miami Valley Hospital	Dayton, Ohio	383
Hospital of the University of Pennsylvania	Philadelphia	504
Allegheny General Hospital	Pittsburgh	405
Children's Hospital	Pittsburgh	196
Mercy Hospital	Pittsburgh	675
St. Francis Hospital	Pittsburgh	555
Rhode Island Hospital	Providence, R. I.	600
Memphis General Hospital	Memphis, Tenn.	425
Vanderbilt University Hospital	Nashville, Tenn.	205

Pediatrics

Children's Hospital	Los Angeles	180
Los Angeles County General Hospital (#1)	Los Angeles	1,524
Children's Hospital of the East Bay	Oakland	65
Hospital for Children	San Francisco	300
San Francisco Hospital	San Francisco	1,437
Stanford University Hospitals	San Francisco	340
University of California Hospital	San Francisco	287
Children's Hospital	Denver	175
New Haven Hospital	New Haven, Conn.	504
Children's Hospital	Washington, D. C.	182
Gallinger Municipal Hospital	Washington, D. C.	664
Henrietta Egleston Hospital for Children	Atlanta, Ga.	52
Children's Memorial Hospital	Chicago	264
Cook County Hospital	Chicago	3,415
Michael Reese Hospital	Chicago	654
Presbyterian Hospital	Chicago	453
Research and Educational Hospital, University of Illinois	Chicago	396
University of Chicago Clinics	Chicago	281
Indiana University Hospitals	Indianapolis	482
University Hospitals	Iowa City	1,008
Louisville City Hospital	Louisville, Ky.	440
Charity Hospital	New Orleans	1,809
Touro Infirmary	New Orleans	373
Johns Hopkins Hospital	Baltimore	909
Union Memorial Hospital	Baltimore	337
Boston City Hospital	Boston	2,285
Boston Floating Hospital	Boston	50
Children's and Infants' Hospitals	Boston	347
Long Island Hospital	Boston	530
Massachusetts General Hospital	Boston	405
University Hospital	Ann Arbor, Mich.	1,269
Children's Hospital	Detroit	239
Minneapolis General Hospital [2]	Minneapolis	653
University Hospitals [2]	Minneapolis	405
City Isolation Hospital [3]	St. Louis	200
St. Louis Children's Hospital	St. Louis	203
St. Louis City Hospital	St. Louis	970
Jersey City Medical Center	Jersey City	1,200
Cumberland Hospital	Brooklyn	321
Jewish Hospital	Brooklyn	674
Kings County Hospital	Brooklyn	1,660
Long Island College Hospital	Brooklyn	480
Buffalo City Hospital	Buffalo	863
Children's Hospital	Buffalo	250
Babies Hospital	New York	200
Bellevue Hospital	New York	2,069
Beth Israel Hospital	New York	343
Fifth Avenue Hospital	New York	300
Harlem Hospital	New York	325
Metropolitan Hospital	New York	1,620
Mount Sinai Hospital	New York	704
New York Nursery and Child's Hospital	New York	256
St. Mary's Hospital for Children	New York	126
Willard Parker Hospital	New York	424
Strong Memorial and Rochester Municipal Hospitals	Rochester, N. Y.	560
Grasslands Hospital	Valhalla, N. Y.	903
Duke Hospital	Durham, N. C.	456

	Location	Capacity
Children's Hospital	Akron, Ohio	110
Children's Hospital	Cincinnati	210
Cincinnati General Hospital [5]	Cincinnati	925
Charity Hospital	Cleveland	307
City Hospital	Cleveland	1,510
St. Ann's Maternity Hospital	Cleveland	118
University Hospitals of Cleveland	Cleveland	843
Children's Hospital	Columbus, Ohio	100
Women's and Children's Hospital	Toledo, Ohio	180
State University Hospitals	Oklahoma City	462
Doernbecher Memorial Hospital	Portland, Ore.	75
Children's Hospital	Philadelphia	136
Hospital of the University of Pennsylvania	Philadelphia	594
Mary J. Drexel Home and Children's Hospital	Philadelphia	51
Pennsylvania Hospital	Philadelphia	560
Philadelphia General Hospital	Philadelphia	2,515
St. Christopher's Hospital for Children	Philadelphia	75
Children's Hospital	Pittsburgh	196
Children's Hospital	Chattanooga, Tenn.	84
Memphis General Hospital	Memphis, Tenn.	425
Vanderbilt University Hospital	Nashville, Tenn.	205
Texas Scottish Rite Hospital for Crippled Children	Dallas, Texas	35
Medical College of Virginia Hospital Division	Richmond, Va.	456
University of Virginia Hospital	University, Va.	320
Children's Orthopedic Hospital	Seattle	135
State of Wisconsin General Hospital	Madison, Wis.	652
Milwaukee Children's Hospital	Milwaukee	150
Milwaukee County General Hospital	Wauwatosa, Wis.	1,075
Psychiatry		
Agnew State Hospital	Agnew, Calif.	2,084
Compton Sanitarium	Compton, Calif.	154
Livermore Sanitarium	Livermore, Calif.	100
Los Angeles County General Hospital (#1)	Los Angeles	1,524
Stanford University Hospitals	San Francisco	340
Colorado Psychopathic Hospital	Denver	78
Neuro-Psychiatric Institute and Hospital of the Hartford Retreat [2]	Hartford, Conn.	200
Connecticut State Hospital	Middletown, Conn.	2,337
Institute of Human Relations, Psychiatric Clinic	New Haven, Conn.	51
Delaware State Hospital	Farnhurst, Del.	887
Gallinger Municipal Hospital	Washington, D. C.	664
St. Elizabeths Hospital	Washington, D. C.	4,960
Veterans Administration Hospital	Augusta, Ga.	966
Chicago State Hospital	Chicago	3,864
Cook County Psychopathic Hospital	Chicago	175
Research and Educational Hospital, University of Illinois	Chicago	396
St. Luke's Hospital	Chicago	659
East Moline State Hospital	East Moline, Ill.	1,948
Kankakee State Hospital	Kankakee, Ill.	4,000
Peoria State Hospital	Peoria, Ill.	2,760
Central State Hospital	Indianapolis	1,733
Logansport State Hospital	Logansport, Ind.	1,340
Iowa State Psychopathic Hospital	Iowa City	60
Osawatomie State Hospital	Osawatomie, Kan.	1,500
Menninger Sanitarium	Topeka, Kan.	46
East Louisiana State Hospital	Jackson, La.	2,600
Baltimore City Hospitals (Psychopathic)	Baltimore	325
Springfield State Hospital	Sykesville, Md.	2,466
Sheppard and Enoch Pratt Hospital	Towson, Md.	300
McLean Hospital	Belmont, Mass.	232
Boston City Hospital	Boston	2,285
Boston Psychopathic Hospital	Boston	126
Boston State Hospital	Boston	1,897
Long Island Hospital	Boston	550
Massachusetts General Hospital	Boston	405
Gardner State Colony	Gardner, Mass.	1,118
Grafton State Hospital	North Grafton, Mass.	1,152
Taunton State Hospital	Taunton, Mass.	1,224
State Psychopathic Hospital at the University of Michigan	Ann Arbor, Mich.	64
University Hospital	Ann Arbor, Mich.	1,269
City of Detroit Receiving Hospital	Detroit	700
Kalamazoo State Hospital	Kalamazoo, Mich.	2,745
Pontiac State Hospital	Pontiac, Mich.	1,763
Traverse City State Hospital	Traverse City, Mich.	2,315
Ypsilanti State Hospital	Ypsilanti, Mich.	1,348
Missouri State Hospital No. 4	Farmington, Mo.	1,164
State Hospital No. 3	Nevada, Mo.	1,731
State Hospital No. 2	St. Joseph, Mo.	2,396
City Sanitarium	St. Louis	2,185
St. Louis City Hospital	St. Louis	970
Norfolk State Hospital	Norfolk, Neb.	940
Albany Hospital	Albany, N. Y.	500
Binghamton State Hospital	Binghamton, N. Y.	2,944
Brooklyn State Hospital	Brooklyn	1,545
Buffalo City Hospital	Buffalo	863
Buffalo State Hospital	Buffalo	2,389
Hastings Hillside Hospital	Hastings-upon-Hudson, N. Y.	40
Gowanda State Homeopathic Hospital	Helmuth, N. Y.	910
Kings Park State Hospital	Kings Park, N. Y.	4,881
Middletown State Homeopathic Hospital	Middletown, N. Y.	3,154
Bellevue Hospital	New York	2,069
Manhattan State Hospital	New York	5,217
Montefiore Hospital for Chronic Diseases	New York	703
Mount Sinai Hospital	New York	704
New York State Psychiatric Institute and Hospital	New York	200
St. Lawrence State Hospital	Ogdensburg, N. Y.	2,256
Hudson River State Hospital	Poughkeepsie, N. Y.	4,364
Rochester State Hospital	Rochester, N. Y.	2,653
Utica State Hospital	Utica, N. Y.	1,731
Grasslands Hospital	Valhalla, N. Y.	903
Bloomingdale Hospital	White Plains, N. Y.	300
North Dakota State Hospital for Insane	Jamestown, N. D.	1,660
Cincinnati Sanitarium	Cincinnati	160
City Hospital	Cleveland	1,510
Cleveland State Hospital	Cleveland	2,400
Columbus State Hospital	Columbus, Ohio	2,200
Dayton State Hospital	Dayton, Ohio	1,524
Massillon State Hospital	Massillon, Ohio	2,785
Toledo State Hospital	Toledo, Ohio	2,411
Allentown State Hospital	Allentown, Pa.	1,466
Danville State Hospital	Danville, Pa.	1,803
Norristown State Hospital	Norristown, Pa.	3,414
Friends Hospital	Philadelphia	190
Pennsylvania Hospital, Department for Mental and Nervous Diseases	Philadelphia	280
Philadelphia General Hospital	Philadelphia	2,515
Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases	Philadelphia	144
St. Francis Hospital	Pittsburgh	555
Warren State Hospital	Warren, Pa.	1,872
State Hospital for Mental Diseases	Howard, R. I.	2,161
Butler Hospital [4]	Providence, R. I.	174
Charles V. Chapin Hospital	Providence, R. I.	265
Yankton State Hospital	Yankton, S. D.	1,657
Western State Hospital	Bolivar, Tenn.	1,700
San Antonio State Hospital	San Antonio, Tex.	2,222
Wichita Falls State Hospital	Wichita Falls, Tex.	1,925
University of Virginia Hospital	University, Va.	320
Lakin State Hospital (col.)	Lakin, W. Va.	450
State of Wisconsin General Hospital	Madison, Wis.	652
Milwaukee Sanitarium	Wauwatosa, Wis.	135
Radiology		
Los Angeles County General Hospital (#1)	Los Angeles	1,524
San Francisco Hospital	San Francisco	1,437
Stanford University Hospitals	San Francisco	340
National Jewish Hospital	Denver	270
New Haven Hospital	New Haven, Conn.	504
Gallinger Municipal Hospital	Washington, D. C.	664
St. Luke's Hospital	Chicago	659
University of Chicago Clinics	Chicago	281
University Hospitals	Iowa City	1,008
Charity Hospital	New Orleans	1,809
Touro Infirmary	New Orleans	373
University of Maryland Hospital	Baltimore	275
Massachusetts General Hospital	Boston	405
Massachusetts Memorial Hospitals	Boston	331
Peter Bent Brigham Hospital	Boston	247
University Hospital	Ann Arbor, Mich.	1,269
City of Detroit Receiving Hospital	Detroit	700
St. Louis City Hospital	St. Louis	970
University of Nebraska Hospital	Omaha	236
Long Island College Hospital	Brooklyn	480
Buffalo City Hospital	Buffalo	863
Bellevue Hospital	New York	2,069
Beth Israel Hospital	New York	343
Metropolitan Hospital	New York	1,620
Montefiore Hospital for Chronic Diseases	New York	703
Mount Sinai Hospital	New York	704
Presbyterian Hospital	New York	554
Willard Parker Hospital	New York	424
Strong Memorial and Rochester Municipal Hospitals	Rochester, N. Y.	569
Grasslands Hospital	Valhalla, N. Y.	903
Duke Hospital	Durham, N. C.	456
Cincinnati General Hospital	Cincinnati	925
University Hospitals of Cleveland	Cleveland	843
Hospital of the University of Pennsylvania	Philadelphia	594
Philadelphia General Hospital	Philadelphia	2,515
St. Francis Hospital	Pittsburgh	555
Medical College of Virginia Hospital Division	Richmond, Va.	456
University of Virginia Hospital	University, Va.	320
State of Wisconsin General Hospital	Madison, Wis.	652
Surgery		
Hillman Hospital	Birmingham, Ala.	464
Cedars of Lebanon Hospital	Los Angeles	290
Los Angeles County General Hospital (#1)	Los Angeles	1,524
White Memorial Hospital	Los Angeles	132
Hospital for Children	San Francisco	300
St. Luke's Hospital	San Francisco	225
San Francisco Hospital	San Francisco	1,437
Stanford University Hospitals	San Francisco	340
University of California Hospital	San Francisco	287
Santa Clara County Hospital	San Jose, Calif.	472
Colorado General Hospital	Denver	178
New Haven Hospital	New Haven, Conn.	504
Gallinger Municipal Hospital	Washington, D. C.	664
Grady Hospital, Emory University Division (Colored Unit)	Atlanta, Ga.	266
University Hospital	Augusta, Ga.	287
Wesley Memorial Hospital	Emory University, Ga.	156
Augustana Hospital	Chicago	375
City of Chicago Municipal Tuberculosis Sanitarium	Chicago	1,240
Passavant Memorial Hospital	Chicago	213
Presbyterian Hospital	Chicago	453
Research and Educational Hospital, University of Illinois	Chicago	396
St. Luke's Hospital	Chicago	659
University of Chicago Clinics	Chicago	281
Silver Cross Hospital	Joliet, Ill.	150
Indianapolis City Hospital	Indianapolis	608
Indiana University Hospitals	Indianapolis	482
University Hospitals	Iowa City	1,008
Louisville City Hospital	Louisville, Ky.	440
Charity Hospital	New Orleans	1,809
Touro Infirmary	New Orleans	373
Baltimore City Hospitals (General)	Baltimore	756
Johns Hopkins Hospital	Baltimore	909
Mercy Hospital	Baltimore	290
St. Agnes Hospital	Baltimore	211
St. Joseph's Hospital	Baltimore	290
Sinai Hospital	Baltimore	269
South Baltimore General Hospital	Baltimore	115

	Location	Capacity
Union Memorial Hospital	Baltimore	337
University of Maryland Hospital	Baltimore	275
West Baltimore General Hospital	Baltimore	200
Beth Israel Hospital	Boston	202
Boston City Hospital	Boston	2,285
Children's and Infants' Hospitals	Boston	347
Collis P. Huntington Memorial Hospital	Boston	25
Long Island Hospital	Boston	550
Massachusetts General Hospital	Boston	405
Massachusetts Memorial Hospitals	Boston	331
Peter Bent Brigham Hospital	Boston	247
Truesdale Hospital	Fall River, Mass.	125
Memorial Hospital	Worcester, Mass.	215
University Hospital	Ann Arbor, Mich.	1,269
City of Detroit Receiving Hospital	Detroit	700
Grace Hospital	Detroit	354
Harper Hospital	Detroit	750
Henry Ford Hospital	Detroit	610
Herman Kiefer Hospital	Detroit	1,400
Jefferson Clinic and Diagnostic Hospital	Detroit	62
Blodgett Memorial Hospital	Grand Rapids, Mich.	150
St. Mary's Hospital	Grand Rapids, Mich.	253
Minneapolis General Hospital [2]	Minneapolis	653
University Hospitals [2]	Minneapolis	405
Ancker Hospital [2]	St. Paul	1,050
St. Louis County Hospital	Clayton, Mo.	228
Barnes Hospital	St. Louis	270
Jewish Hospital	St. Louis	290
St. Louis City Hospital	St. Louis	970
St. Louis City Hospital No. 2 (col.)	St. Louis	470
St. Mary's Group of Hospitals	St. Louis	743
Jersey City Medical Center	Jersey City	1,200
Albany Hospital	Albany, N. Y.	500
Cumberland Hospital	Brooklyn	321
Jewish Hospital	Brooklyn	674
Kings County Hospital	Brooklyn	1,660
Long Island College Hospital	Brooklyn	480
Buffalo City Hospital	Buffalo	863
Buffalo General Hospital	Buffalo	460
Millard Fillmore Hospital	Buffalo	301
Clifton Springs Sanitarium and Clinic	Clifton Springs, N.Y.	458
Charles S. Wilson Memorial Hospital	Johnson City, N.Y.	200
Bellevue Hospital	New York	2,069
Beth Israel Hospital	New York	343
Fifth Avenue Hospital	New York	300
Lenox Hill Hospital	New York	400
Metropolitan Hospital	New York	1,620
Montefiore Hospital for Chronic Diseases	New York	703
Mount Sinai Hospital	New York	704
New York Post-Graduate Medical School and Hospital	New York	415
Presbyterian Hospital	New York	554
Stuyvesant Square Hospital	New York	100
Genesee Hospital	Rochester, N. Y.	214
Rochester General Hospital	Rochester, N. Y.	335
Strong Memorial and Rochester Municipal Hospitals	Rochester, N. Y.	560
House of the Good Shepherd	Syracuse, N. Y.	269
Grasslands Hospital	Valhalla, N. Y.	903
Duke Hospital	Durham, N. C.	456
Watts Hospital	Durham, N. C.	210
Davis Hospital	Statesville, N. C.	132
City Hospital	Akron, Ohio	350
Cincinnati General Hospital	Cincinnati	925
Good Samaritan Hospital	Cincinnati	535
Jewish Hospital	Cincinnati	272
Charity Hospital	Cleveland	307
City Hospital	Cleveland	1,510
Mount Sinai Hospital	Cleveland	270
St. Alexis Hospital	Cleveland	220
St. John's Hospital	Cleveland	214
St. Luke's Hospital	Cleveland	394
University Hospitals of Cleveland	Cleveland	843
Starling-Loving University Hospital	Columbus, Ohio	276
Miami Valley Hospital	Dayton, Ohio	383
State University Hospitals	Oklahoma City	462
Multnomah Hospital	Portland, Ore.	300
Graduate Hospital of the University of Pennsylvania	Philadelphia	348
Philadelphia General Hospital	Philadelphia	2,515
Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases	Philadelphia	144
Allegheny General Hospital	Pittsburgh	405
St. Francis Hospital	Pittsburgh	555
Western Pennsylvania Hospital	Pittsburgh	651
Knoxville General Hospital	Knoxville, Tenn.	285
Memphis General Hospital	Memphis, Tenn.	425
Nashville General Hospital	Nashville, Tenn.	196
Vanderbilt University Hospital	Nashville, Tenn.	205
Baylor Hospital	Dallas, Texas	341
Parkland Hospital	Dallas, Texas	295
Hermann Hospital	Houston, Texas	199
Medical College of Virginia Hospital Division	Richmond, Va.	456
St. Elizabeth's Hospital	Richmond, Va.	56
Jefferson Hospital	Roanoke, Va.	119
University of Virginia Hospital	University, Va.	320
Charleston General Hospital	Charleston, W. Va.	165
State of Wisconsin General Hospital	Madison, Wis.	652
Tropical Diseases		
Boston City Hospital	Boston	2,285
Presbyterian Hospital	San Juan, P. R.	77
University Hospital of the School of Tropical Medicine	San Juan, P. R.	55
Tuberculosis		
Arroyo Sanatorium	Livermore, Calif.	180
Barlow Sanatorium	Los Angeles	100
Los Angeles County General Hospital (#1)	Los Angeles	1,524
Pottenger Sanatorium and Clinic	Monrovia, Calif.	134
San Francisco Hospital	San Francisco	1,437
Santa Clara County Hospital	San Jose, Calif.	472
Union Printers' Home and Tuberculosis Sanatorium	Colorado Springs, Colo.	356
National Jewish Hospital	Denver	270
Sanatorium of the Jewish Consumptives' Relief Society	Spivak, Colo.	300
Cedarcrest	Hartford, Conn.	289
Meriden State Tuberculosis Sanatorium	Meriden, Conn.	252
City of Chicago Municipal Tuberculosis Sanatorium	Chicago	1,240
University of Chicago Clinics	Chicago	281
Macon County Tuberculosis Hospital	Decatur, Ill.	80
Cook County Tuberculosis Hospital	Oak Forest, Ill.	634
Rockford Municipal Sanitarium	Rockford, Ill.	121
Boehne Tuberculosis Hospital	Evansville, Ind.	115
Indiana State Sanatorium	Rockville, Ind.	200
Baltimore City Hospitals (Tuberculosis)	Baltimore	182
Mt. Pleasant	Reisterstown, Md.	60
Boston City Hospital	Boston	2,285
Sassaquin Sanatorium	New Bedford, Mass.	118
Westfield State Sanatorium	Westfield, Mass.	306
Belmont Hospital	Worcester, Mass.	275
University Hospital	Ann Arbor, Mich.	1,269
American Legion Hospital	Battle Creek, Mich.	400
Herman Kiefer Hospital	Detroit	1,400
Sunshine Sanatorium	Grand Rapids, Mich.	135
Morgan Heights Sanatorium	Marquette, Mich.	87
William H. Maybury Sanatorium	Northville, Mich.	857
Nopeming Sanatorium	Nopeming, Minn.	230
Glen Lake Sanatorium	Oak Terrace, Minn.	696
Robert Koch Hospital	St. Louis	501
St. Mary's Group of Hospitals	St. Louis	743
New Jersey Sanatorium for Tuberculous Diseases	Glen Gardner, N. J.	494
Essex Mountain Sanatorium	Verona, N. J.	417
Montefiore Hospital, Bedford Sanitarium	Bedford Hills, N. Y.	220
Workmen's Circle Sanatorium	Liberty, N. Y.	100
Loomis Sanatorium	Loomis, N. Y.	225
Metropolitan Life Insurance Company Sanatorium	Mt. McGregor, N. Y.	360
Bellevue Hospital	New York	2,069
Metropolitan Hospital	New York	1,620
Montefiore Hospital for Chronic Diseases	New York	703
Willard Parker Hospital	New York	424
Samuel W. Bowne Memorial Hospital	Poughkeepsie, N.Y.	185
New York State Hospital	Ray Brook, N. Y.	300
Iola Sanatorium	Rochester, N. Y.	400
Trudeau Sanatorium	Trudeau, N. Y.	185
Grasslands Hospital	Valhalla, N. Y.	903
North Carolina Sanatorium for the Treatment of Tuberculosis	Sanatorium, N. C.	400
Cincinnati General Hospital	Cincinnati	925
City Hospital	Cleveland	1,510
Ohio State Sanatorium	Mt. Vernon, Ohio	240
Pennsylvania State Sanatorium for Tuberculosis	Cresson, Pa.	840
Hamburg State Sanatorium for Tuberculosis	Hamburg, Pa.	534
Norristown State Hospital	Norristown, Pa.	3,414
Tuberculosis League Hospital	Pittsburgh	150
Pennsylvania State Sanatorium for Tuberculosis	South Mountain, Pa.	950
Charles V. Chapin Hospital	Providence, R. I.	265
Rhode Island State Sanatorium	Wallum Lake, R. I.	433
Pine Breeze Sanitarium	Chattanooga, Tenn.	225
Davidson County Tuberculosis Hospital	Nashville, Tenn.	300
Homan Sanatorium	El Paso, Texas	110
St. Joseph's Sanatorium	El Paso, Texas	75
Wisconsin State Sanatorium	Statesan, Wis.	228
Muirdale Sanatorium for the Treatment of Tuberculosis	Wauwatosa, Wis.	375
Urology		
Hillman Hospital	Birmingham, Ala.	464
Los Angeles County General Hospital (#1)	Los Angeles	1,524
Stanford University Hospitals	San Francisco	340
University of California Hospital	San Francisco	287
Grady Hospital, Emory University Division (Colored Unit)	Atlanta, Ga.	200
St. Luke's Hospital	Chicago	650
University of Chicago Clinics	Chicago	281
Charity Hospital	New Orleans	1,800
Touro Infirmary	New Orleans	373
Johns Hopkins Hospital	Baltimore	900
Beth Israel Hospital	Boston	202
Massachusetts General Hospital	Boston	405
University Hospital	Ann Arbor, Mich.	1,269
City of Detroit Receiving Hospital	Detroit	700
Ancker Hospital	St. Paul	1,050
St. Louis City Hospital	St. Louis	970
Bayonne Hospital and Dispensary [6]	Bayonne, N. J.	200
Jersey City Medical Center	Jersey City	1,200
Newark City Hospital	Newark, N. J.	781
Kings County Hospital	Brooklyn	1,660
Long Island College Hospital	Brooklyn	480
Buffalo City Hospital	Buffalo	863
Bellevue Hospital	New York	2,069
Metropolitan Hospital	New York	1,620
New York Hospital	New York	617
Presbyterian Hospital	New York	554
Cincinnati General Hospital	Cincinnati	925
Starling-Loving University Hospital	Columbus, Ohio	276
Graduate Hospital of the University of Pennsylvania	Philadelphia	348
Hospital of the University of Pennsylvania	Philadelphia	594
Mercy Hospital	Pittsburgh	675
University of Virginia Hospital	University, Va.	320
Milwaukee County General Hospital	Wauwatosa, Wis.	1,075

1. Including urology.
2. Fellowships.
3. One fellowship; one residentship.
4. Three months' training in pediatric neurology given at Emma Pendleton Bradley Home, East Providence.
5. Including contagious diseases.
6. First six months spent at New York Post-Graduate Medical School.

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SATURDAY, AUGUST 26, 1933

POSTOPERATIVE NUTRITIONAL EDEMA

Present-day conceptions of biologic processes and practice in modern therapeutics take into consideration the paramount significance of body fluid. Much effort on the part of investigators has been expended in attempts to evaluate the factors concerned in the maintenance of the so-called water balance in the organism. Although there are many circumstances in which the actual mechanism concerned in the normal movement and abnormal localization of fluid is not clear, it has recently been pointed out by Peters [1] that the fundamental processes involved are essentially physical and chemical in nature. He has repeatedly emphasized the inevitable association of dissolved substances with water in the body. These are predominantly protein, inorganic salts and organic metabolites. In addition to the part played by these substances in nutrition and metabolism, they develop osmotic pressure in solution and thus exert a highly significant influence on the movement of fluid.

The part played by shifts in concentration of electrolytes in changes of water in the body is recognized in such clinical conditions as edema of cardiac and renal origin, and in epidemic and endemic nutritional edema. A recent study by Jones and Eaton [2] calls attention to postoperative edema, which, for apparently good reasons, they classify as nutritional. They report observations on thirty-four patients, twenty-six of whom showed more or less extensive edema. The surgical intervention in most cases was connected with the gastro-intestinal tract, and the edema appeared in the extremities and in the walls of the stomach and intestine. The nature of the abnormalities treated implied a greater or less degree of previous malnutrition; the necessity for fluid after operation called for large quantities of water, usually given parenterally as physiologic solution of sodium chloride, and the nature of the repair prevented satisfactory postoperative nutrition for some time. When edema appeared, the level of serum protein was definitely low, possibly as a result of dilution, loss by hemorrhage or increased permeability of the capillaries. It appears that under these circumstances fluid accumulated in the interstitial tissue spaces because of the deficiency of serum proteins, the large intake of water and of salt and the inability to institute such nutritive measures as would tend to replace the depleted body protein.

It is obvious that in the majority of the cases cited by the Boston investigators there is presented a grave problem of clinical management. The necessary preliminary treatment is rendered extremely difficult by the pathologic condition. They suggest a preliminary jejunostomy as a device for building up the nutritive state of the patient prior to the major gastro-intestinal operation, a device which itself denotes the seriousness of the situation. Both physicians and physiologists are aware of the importance of water in the body; the foregoing observations emphasize the many factors involved in maintaining the balance of fluid within normal bounds.

1. Peters, J. P.: The Distribution and Movement of Water and Solutes in the Human Body, Yale J. Biol. & Med. **5**: 431 (May) 1933.
2. Jones, C. M., and Eaton, Frances B.: Postoperative Nutritional Edema, Arch. Surg. **27**: 159 (July) 1933.

DIVERSITY OR UNIFORMITY IN MEDICAL TRAINING

Times of financial stress have at least the mitigating value that they stimulate analysis of objectives and a critical appraisal of methods. Higher education has not been exempt from this scrutiny and in many instances a radical reorganization has taken place. Medicine, as indicated by the Committee on the Costs of Medical Care and the Commission on Medical Education, is facing new problems, of which none is of more far-reaching significance than the determination of the kind and extent of practice for which the medical student should be trained.

Dr. Alan Gregg of the Rockefeller Foundation, at the last Annual Congress on Medical Education and Licensure, reviewed the fundamental characteristics of medical education in Europe, emphasizing the totally different concepts that prevail in the northern countries from those embodied in the customs of the nations farther south. Where population is sparse, cities few and transportation poorly developed, medical practice is in the hands of the general practitioner who is dependent on his own resources. Under these conditions a longer and more comprehensive training is required, as in the Scandinavian countries, where the minimum period is from seven to nine years. In France, Germany, Austria and Italy, on the other hand, population is dense, cities are numerous, transportation is facile and a medical curriculum of five and a half years is legally sufficient, because it is well known that the recent graduate will be compelled by economic and social forces to work for five or ten years under supervision before he will be called on to practice on his own responsibility.

In the United States it has been tacitly assumed that a single sort of training for the practice of medicine

should satisfy the needs of the whole country and that legal standards should be as nearly uniform as possible. May it not be possible that the overgrowth of specialism, now so bitterly complained of, and the fadeout of the general practitioner, are both in some measure due to an earnest endeavor to fit all medical education to a procrustean bed? Should the less densely populated states follow the example of northern Europe and raise the standards of medical education and licensure?

SOME EFFECTS OF OVERDOSAGE WITH VIOSTEROL

Not long after the introduction of viosterol, tests made on experimental animals with large doses demonstrated that under certain conditions it can give rise to harm. This knowledge tended for a time to dampen the ardor with which the new vitamin D product was being applied in practical medicine. Before long, however, it was learned that the range between therapeutic and toxic doses is large, so that the danger of overdosage now seems rather remote. Only when the intake of viosterol solutions exceeds the established medicinal dose a thousand times, or by some excess of that approximate magnitude, do the symptoms of disorder clearly manifest themselves. According to a recent compilation,[1] it has been found that from 10,000 to 100,000 times the minimum protective dose caused a rapid loss of weight, loss of appetite and decrease in vigor, followed by death in white mice, rats, guinea-pigs, rabbits, cats and dogs. Death occurred at varying intervals for different animals—an average of ten days for the rabbit to thirty-six days for the guinea-pig. After death, large deposits of calcium were found in the walls of blood vessels and of the vital organs. In many animals, hardening of the arteries had taken place.

Such phenomena may be classed in the category of toxicology rather than that of clinical therapeutics. The fact that overdosage with almost any widely used drug may lead to serious harm or even prove fatal does not of itself detract from its legitimate use therapeutically. The body itself is maintained in health in some measure by the hydrochloric acid of the gastric juice; yet in considerably larger concentration the same acid may be a corrosive poison. Safety and intelligent use of such substances depends on thorough information regarding their action under varied circumstances. Medicine, therefore, should welcome every new study of viosterol, particularly in view of the increasing tendency to fortify many common foods, such as milk and bread, with vitamin D.

In recent studies by Reed and his co-workers [2] at the University of Illinois College of Medicine, a significant increase in the resting, postabsorptive metabolic rate in animals has been observed following administration of large doses of viosterol. This stimulation of the metabolic rate has been difficult to explain, as it has not yet been quantitatively related to any other observed factor. During administration at a low level there is usually retention of calcium with a shift from feces to urine. On heavy or long-continued administration there is increased elimination of calcium in the urine, although a good balance may be maintained. To a lesser extent the same holds for the excretion of phosphorus. During the period of increased elimination of calcium in the urine there is usually a great increase in the volume of urine. There is no evidence of any effect on nitrogen metabolism. It is believed that one of the early effects of heavy dosage is increased consumption of body fat.

Hypercalcification has been observed by many investigators. The Chicago researches [2] indicate anew that the calcium content of any tissue may be significantly increased by the administration of viosterol, although wide variations may occur, certain tissues showing no increase. The magnitude of the increase in calcium content is not correlated with the dosage but seems to depend on some undetermined individual factors. The phosphorus content, while widely variable among individual animals, was affected by the administration of viosterol in a much less constant manner, if at all. According to these studies the significance of deposition of calcium in the tissues cannot be evaluated at present. Microscopic examination showed degenerated cells in some tissues, but this was not a constant finding except in the kidneys. Here one gains the impression that cellular injury occurred first, in which case the deposition of calcium probably was a direct result.

1. Sure, Barnett: The Vitamins in Health and Disease, Baltimore, Williams and Wilkins Company, 1933.

2. Reed, C. I.; Thacker, E. A.; Dillman, L. M., and Welch, J. W.: The Effects of Irradiated Ergosterol on the Metabolism of Normal Dogs, J. Nutrition **6**: 355 (July) 1933. Reed, C. I.; Dillman, L. M.; Thacker, E. A., and Klein, R. I.: The Calcification of Tissues by Excessive Doses of Irradiated Ergosterol, ibid., p. 371.

Current Comment

ACCREDITING EXAMINING BOARDS IN THE SPECIALTIES

Within a generation, specialism has revolutionized the practice of medicine. The rapid growth of the biologic sciences has contributed to this end, as well as the development of highly particularized skills in the treatment of patients. Surgery, in its various branches, obviously cannot be safely practiced by one whose opportunity for training has been limited to the cases occurring in his own general practice. When, in 1904, the American Medical Association undertook the publication of its directory, reliable criteria for the designation of specialists did not exist. The Association therefore asked each physician to mention the field in which he was especially interested and also to indicate whether he limited his practice to that field. For many years this procedure sufficed. Recently, however, there has been a growing demand in the profession for a more accurate method of determining who is a qualified specialist. To satisfy this need, the American Board

for Ophthalmic Examinations was organized in 1916, to test by written and oral examinations the fitness of those who aspired to be known as ophthalmologists. The certificates granted by this board have come to be regarded as satisfactory evidence of the requisite knowledge and skill in this field. In other fields similar boards have been created, and doubtless more will follow. The process of certifying specialists is still in a formative stage and many competent men have not yet availed themselves of the opportunity to obtain certification. The process is voluntary and the cost is not inconsiderable. Furthermore, there are still many branches of medicine that do not have special examining boards. At the Milwaukee session the Council on Medical Education and Hospitals was asked by the House of Delegates to express its approval of various examining boards which conformed to standards established by the Council and also to use the machinery of the Association, including its directory, in furthering the work of the accredited boards. At present the public is still in doubt as to any means of recognizing special competence in specialized medical fields. It is hoped that the Council, with the assistance of the publicity afforded by the American Medical Directory, may begin to establish order in the chaotic condition that now prevails.

PHYSICIANS, HOSPITALS AND THE NATIONAL INDUSTRIAL RECOVERY ACT

Mr. Donald R. Richberg, general counsel of the National Recovery Administration, has given an opinion concerning the status of hospitals under the National Industrial Recovery Act. While it relates primarily to hospitals, it incidentally covers all professional men and organizations and all nonprofit organizations. Mr. Richberg says:

> Hospitals, not engaged in carrying on a trade or industry, do not come within the purview of the National Industrial Recovery Act, so as to come under the ordinary requirement of a code of fair competition. There is nothing to prevent any employer of labor outside of trades and industries, any professional man or organization, or any nonprofit organization, from signing the President's Reemployment Agreement and conforming to its provisions. This does not mean, however, that they are under any compulsion to do so other than that resulting from a desire to cooperate where appropriate, and so far as possible, with a general program of reemployment at shorter hours and higher wages. To the extent that labor is employed in occupations comparable with those engaged in trade or industry, it is of course desirable that similar conditions should prevail.

Outside of the trades and industries, therefore, a hospital, a professional man or organization and a nonprofit organization of any kind are under no legal duty to formulate and adopt a code of fair practice or to sign the President's reemployment agreement. With them the adoption of codes and the signing of the agreement are matters of circumstance and of patriotism. Whether a physician will or will not sign the President's reemployment agreement and display the official emblem in his office, on his automobile and elsewhere may, of course, be determined by the local medical organization in each community. Obviously, if a physician whose financial circumstances enable him without hardship to reduce the hours of his employees and to pay the wages specified in the President's reemployment agreement signs the agreement and displays the emblem, indicating to the public that he has done so, he may work an injustice on his financially less fortunate fellow practitioners. He would, perhaps, leave the public in doubt as to whether their failure to display the emblem is due to lack of patriotism or to lack of professional or financial success. His conduct certainly would not constitute fair practice, which, after all, is one of the prime objectives of the National Industrial Recovery Act. If all physicians in a community cannot without undue hardship sign the President's reemployment agreement and conform to its exact terms as they are written, a local medical society that desires to cooperate with the President without violating the principles of fair practice may follow either of two courses: under paragraph 14 of the President's reemployment agreement it may ask for a modification that will permit compliance without hardship, or it may advise its members to enroll under the consumer's agreement and to display only the consumer's emblem.

THE GROWTH OF RESEARCH IN THE SCIENCES

The current growth of scientific literature seems destined "to tax beyond measure the ingenuity and industry of the chronicles." One commentator on the situation points out, after a study of the output from many scientific laboratories, that new journals are being born over night and that little if any abatement is yet evident in the flood of papers to the old. In the case of medicine, which banks in increasing measure on the research contributions of the so-called pure sciences, the need of coordination of the latter with the problems and the observations of the clinic is acutely appreciated. Indeed, it has been stated recently that the "water tight" compartments of the various sciences are still too water tight. The writers [1] of this statement remark that the physician who graduated twenty years ago, and perhaps even more recently, was given little biochemical training of any kind. Yet medical literature contains a large proportion of papers filled with biochemical studies of disease conditions. Comprehension of such papers is necessary if one is to keep abreast of the advances of medical science, but such comprehension involves some knowledge of biochemistry. In another column the latest volume of the Annual Review of Biochemistry is reviewed.[2] The editors point out that on vitamins alone no less than a thousand papers are reported to have been published in the past year. In the present volume almost three thousand papers in twenty-five different fields have actually received review; and it is believed that this actually represents "less than half of the papers of sufficient merit and weight to deserve treatment." An examination of the index reveals that somewhat more than three thousand five hundred biochemical investigators have been concerned during approximately a

1. Cameron, A. T., and Gilmour, C. R.: The Biochemistry of Medicine, Baltimore, William Wood & Co., 1933.
2. Annual Review of Biochemistry, edited by J. M. Luck, this issue, p. 732.

single year with the researches of major merit. The records of the lesser contributions would doubtless swell the numbers of this biologic research army to considerably greater proportions. It requires actual statistics, like these from a single "preclinical" science, to enable the physician of today to realize what the task of keeping informed really means. It explains, too, the purpose of THE JOURNAL in assisting in what would be, for the unaided clinician, an almost futile or herculean endeavor.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Tuesday and Thursday from 9:15 to 9:20 a. m., Chicago daylight saving time, which is one hour faster than central standard time, over Station WBBM (770 kilocycles, or 389.4 meters).

The subjects for the week are as follows:

August 29. Living Better.
August 31. Demand Clean Food.

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 9:45 to 10 o'clock over Station WBBM.

The subject for the week is as follows:

September 2. Dandruff.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Child Rating Plan Announced.—The University of California Institute of Child Welfare has published a plan to be used by nursery school teachers in taking behavior inventories, the New York *Times* reports. The plan, which consists of a table of 133 traits in which the child will be rated, will be used as a means of encouraging careful observations of personality traits in preschool children and the accumulation of knowledge that may aid in guiding emotional development.

Course in Ophthalmology and Otolaryngology.—The Research Study Club of Los Angeles will present its third annual midwinter course on ophthalmology and otolaryngology, beginning January 15 and continuing two weeks. Guest lecturers will include Prof. Anton Elschnig of the German University Eye Clinic, Prague, Czechoslovakia; Dr. John F. Barnhill, professor of surgery of the head, Indiana University School of Medicine, Indianapolis, and Miami Beach, Fla.; Dr. Hans Barkan, associate clinical professor of surgery, department of ophthalmology, Stanford University School of Medicine, San Francisco; Dr. Edward C. Sewall, clinical professor of surgery, Stanford University School of Medicine, San Francisco, and Dr. Harry L. Baum, Denver. Local specialists will also offer lectures and clinics. The fee for the entire course will be $50. Further information and a detailed program may be obtained from the secretary, Dr. Donald S. Dryer, 2007 Wilshire Boulevard, Los Angeles.

COLORADO

State Board Election.—Dr. Gerald B. Webb, Colorado Springs, was elected president of the Colorado State Board of Medical Examiners at the quarterly meeting, July 11. Dr. Elbert B. Swerdfeger, Denver, was elected vice president and Dr. William Whitridge Williams, Denver, reelected secretary-treasurer. In April, Dr. Nolie Mumey, Denver, was appointed to the board to succeed Dr. Henry R. McGraw, Denver. Dr. Webb was appointed in December, 1932.

Society News.—Dr. Kenneth D. A. Allen, Denver, addressed the Larimer County Medical Society, Fort Collins, July 5, on intestinal obstruction.——Dr. Louis S. Faust, Denver, was guest of the Weld County Medical Society, Greeley, in June, speaking on the diagnosis and treatment of colitis.——Drs. Harry H. Wear and Thomas D. Cunningham, Denver, addressed the Northwestern Colorado Medical Society, June 29, at Hayden, on "Transurethral Resection" and "Chronic Arthritis," respectively.——Speakers before the San Luis Valley Medical Association in Alamosa, July 28, were Drs. John R. Evans, Denver, on calcium therapy in pregnancy; Frederick E. Diemer, Denver, early x-ray treatment of malignancy, and Vernon G. Jeurink, Denver, common rectal complaints.

CONNECTICUT

Clinical Congress.—The ninth clinical congress of the Connecticut State Medical Society will be held in New Haven, September 19-21. Sessions will be held at the Sterling Hall of Medicine and the New Haven Hospital, with the following speakers:

Dr. Richard M. Smith, Boston, Food Essentials for Infants and Children.
Dr. Cornelius P. Rhoads, Springfield, Clinical Deficiency Diseases.
Dr. Elliott P. Joslin, Boston, Newer Progress in the Treatment of Diabetes.
Dr. William B. Castle, Boston, Classification of Anemias: A Revision.
Dr. Paul Reznikoff, New York, White Blood Cells in Disease.
Dr. Sam Zachary Levine, New York, Water Exchange in Infants.
Albert Baird Hastings, Ph.D., Chicago, Edema.
Dr. H. Earle Conwell, Fairfield, Ala., Indications for Traction in Recent Fractures.
Dr. George E. Bennett, Baltimore, Symptomatology, Diagnosis and Treatment of Lumbosacral and Sacro-Iliac Strain.
Dr. Seward Erdman, New York, Hernia and the Workmen's Compensation Act.
Dr. Henry H. Kessler, Newark, N. J., Traumatic Neuroses in Industrial Accidents.
Mr. Howard S. Cullman, New York, Medical and Social Problems in Connection with Workmen's Compensation Insurance.

There will be demonstrations and discussions on the anemias, agranulocytosis, edema, fractures and apparatus for treatment of injuries to the back. An exhibit of special diets will be presented by the dietary department of New Haven Hospital Tuesday afternoon at the hospital and the following program of motion pictures will be given following a dinner Tuesday evening at the New Haven Lawn Club: "William Harvey and the Circulation of the Blood," "Development of the Rabbit Egg" and "Development of the Monkey Egg." A fee of $5 covers admission to all sessions, luncheon for all three days and garage accommodations, but not the dinner meetings. Dr. Creighton Barker, 129 Whitney Avenue, New Haven, is chairman of the committee on publicity and registration.

FLORIDA

University News.—Bernard V. Christensen, Ph.D., professor and head of the department of pharmacognosy and pharmacology, University of Florida, has been appointed director of the school of pharmacy. The college of pharmacy was recently classified as a school and placed under the college of arts and sciences. Dr. Christensen is a member of the revision committee of the U. S. Pharmacopeia and the committee on pharmaceutical botany and pharmacognosy of the National Research Council and is chairman of the committee on standardization of botanical drugs of the American Conference on Pharmaceutical Research.

GEORGIA

Personal.—Dr. Oliver L. Von Canon has resigned as health commissioner of Brooks County because of recent injuries sustained in an automobile accident.——Dr. James A. Thrash, Jr., Columbus, has been appointed health officer of Muscogee County.——Dr. John P. Kennedy, health officer of Atlanta, was recently reappointed for his sixteenth term. He has served fourteen two-year terms and one four-year term.——Dr. Fred H. Simonton, Chickamauga, for two years health commissioner of Walker County, has resigned.

INDIANA

New Secretary of Medical Board.—Dr. Franklin S. Crockett, Lafayette, has been appointed secretary of the Indiana State Board of Medical Examiners, succeeding Dr. William A. Davidson, resigned. Dr. Davidson, president of the board in 1921, became secretary in 1929.

Society News.—Dr. Pierce MacKenzie, Evansville, addressed the Gibson County Medical Society, Princeton, July 10, on "Preventive Measures and Management of Eclampsia."——Drs. Joseph H. Weinstein, Terre Haute, president, Indiana State Medical Association, and Mr. Thomas A. Hendricks, Indian-

apolis, executive secretary, among others, addressed the Tippecanoe County Medical Society, July 13, on medical organization and the new plan of the state committee for child and maternal welfare.——Dr. Willis D. Gatch, Indianapolis, addressed the Carroll County Medical Society, July 14, on abdominal obstruction.——Dr. John M. Whitehead, Indianapolis, discussed anesthesia at a meeting of the Hendricks County Medical Society, Danville, July 21.

MARYLAND

Increase in Venereal Disease.—The number of cases of venereal disease reported in Baltimore has been so great in the past two years that the cases referred to municipal clinics have become a problem, according to *Baltimore Health News*. Clinic service has almost doubled in volume. The situation within recent months became acute and Dr. Allen W. Freeman, professor of public health administration, Johns Hopkins University School of Hygiene and Public Health, was asked to make a study of the municipal venereal disease service. His report revealed that the clinics are badly housed and poorly equipped and the number of patients attending them too great to be handled properly. He recommended, among other things, that, in view of the present impossibility of obtaining increased facilities, the load on the present staff should be diminished by discontinuing treatment to patients who have already received four courses of arsphenamine. He felt that if a free supply of arsphenamine should be made available, hospital clinics would assume treatment of these patients. The report stresses the importance of treating patients in the infectious stage.

MASSACHUSETTS

Dr. Bigelow Appointed Superintendent of Massachusetts General Hospital.—Dr. George H. Bigelow, commissioner of health of Massachusetts since 1925, has resigned to become superintendent of the Massachusetts General Hospital, Boston, effective October 1, succeeding Dr. Frederic A. Washburn, superintendent of the institution since 1922, who will reach the retirement age within a few months. A graduate of Harvard University Medical School, Dr. Bigelow was deputy state commissioner of health and director of the division of communicable diseases before he became commissioner. Dr. Washburn, also a graduate of Harvard, first became associated with the Massachusetts General Hospital in 1899 as assistant resident physician. He has also been superintendent since 1922 of the Massachusetts Charitable Eye and Ear Infirmary. He was president of the American Hospital Association in 1912 and has been a member of the Council on Medical Education and Hospitals, American Medical Association, since May, 1932.

MICHIGAN

Dr. Chadwick Appointed Massachusetts State Health Commissioner.—Dr. Henry D. Chadwick, tuberculosis controller of the Detroit Health Department since 1929, has been designated commissioner of health of Massachusetts to succeed Dr. George H. Bigelow, resigned. A graduate of Harvard University Medical School, Dr. Chadwick began practice in Waltham, Mass. He served as superintendent of the Vermont Sanatorium for Tuberculosis, Pittsford, from 1907 to 1909, and held a similar post with the Westfield (Mass.) State Sanatorium for tuberculous children from 1909 to 1929, when he went to the Detroit Health Department. In 1927 he was acting director of the division of tuberculosis of the Massachusetts State Department of Public Health. He originated the so-called "ten year program," known as the Chadwick Clinics in Massachusetts for the examination of school children.

MISSISSIPPI

Improving the Sanitation of Dairies.—A program of dairy improvement in south Mississippi was recently launched in conjunction with one Mississippi and two Louisiana milk plants which obtain a part or all of their milk from Mississippi dairies. Improved sanitation at these dairies was necessary in order that the milk shipped into Louisiana might meet the requirements of the Louisiana State Board of Health. The owners of the plants cooperated by agreeing to pay the cost of an inspector who would be responsible to the Mississippi board. The work is being carried on according to the requirements of the standard milk ordinance sponsored by the U. S. Public Health Service.

Society News.—Dr. John C. Culley, Oxford, among others, addressed the Central Medical Society, Jackson, July 5, on "Symptomatic Agranulocytic Angina Following Neoarsphenamine Therapy."——Dr. Hillrie K. Rouse, Jr., Lyman, presented a paper on diarrheas in children before the Harrison-Stone-Hancock Counties Medical Society, Gulfport, July 5.——Speakers at a meeting of the Homochitto Valley Medical Society, Centerville, July 13, were Drs. Alton Ochsner, New Orleans, on "Complications of Appendicitis"; Leon S. Lippincott, Vicksburg, "Cancer of the Cervix Uteri," and John W. Barksdale, Jackson, "Immediate Operation in Acute Infection of the Fallopian Tubes."——The Issaquena-Sharkey-Warren Counties Medical Society was addressed in Vicksburg, July 11, by Drs. Phillip C. Schreier, Memphis, on "Diagnosis and Treatment of the Diseased Cervix"; Sydney W. Johnston, "Endocervicitis," and John A. K. Birchett, Jr., "Conservative Treatment of Compound Fractures of the Long Bones."

MISSOURI

Commemoration of Founding of St. Louis Hospital.—A bronze tablet was unveiled, June 14, on the site of the first hospital west of the Mississippi River, 76 Spruce Street, St. Louis, during the eighteenth annual convention of the Catholic Hospital Association of the United States and Canada. It commemorates the founding of the St. Louis Hospital, Nov. 6, 1828. The Mullanphy Hospital grew out of this early institution and was followed by the De Paul Hospital, which now occupies the site under the direction of the Daughters of Charity of St. Vincent De Paul.

Outbreak of Encephalitis.—Twelve fatalities have occurred in an outbreak of encephalitis of the epidemic type in St. Louis County, according to the Chicago *Tribune*, August 21. The disease first made its appearance in the suburbs of the county, July 23. In only one instance have two patients been reported in a family. City and county health officers are endeavoring to prevent the spread of the disease, and state and federal health authorities are cooperating. One report stated that thirty-seven patients were under treatment at the Isolation Hospital, St. Louis. About 100 patients have been hospitalized thus far in the outbreak. Dr. James P. Leake and Dr. Charles Armstrong of the U. S. Public Health Service are in St. Louis to cooperate in controlling the disease.

Society News.—Dr. Levi H. Fuson, St. Joseph, addressed the Buchanan County Medical Society, June 21, on "Neutropenic States, Including Report of Nine Cases of Agranulocytic Angina."——Dr. William Beckman, Strasburg, addressed the Cass County Medical Society, June 8, at Harrisonville, on empyema and Dr. Harry S. Crawford, Kansas City, recalled the history of the society, of which he was secretary for twelve years.——Drs. Ernest L. Cartwright and Guy D. Callaway, Springfield, addressed the Dallas-Hickory-Polk Counties Medical Society, Buffalo, June 6, on "Prenatal Care, Delivery and Postnatal Care of Normal Obstetrical Cases" and "Coronary Occlusion," respectively.——Drs. Daniel L. Yancey, Jr., and C. H. Max Fitch, Springfield, addressed the Greene County Medical Society, June 9, on "Treatment of Compressed and Impacted Fractures of Vertebrae" and "Nonspecific Protein Therapy," respectively.——Drs. Guy D. Callaway and Forrest A. Harrison, Springfield, addressed the Wright-Douglas Counties Medical Society, Mountain Grove, June 15, on "Sclerosis, Embolism and Thrombosis of the Coronary Arteries" and "Treatment of Summer Diarrheas," respectively.——Dr. E. Gorter, professor of pediatrics, University of Leyden, Holland, addressed a joint meeting of the St. Louis Pediatric and St. Louis Medical societies, recently, on "Copper and Anemia."

NEW JERSEY

Health at Trenton.—Telegraphic reports to the U. S. Department of Commerce from eighty-five cities with a total population of 37 million, for the week ended August 12, indicated that the highest mortality rate (15.5) appeared for Trenton and the rate for the group of cities, 9.2. The mortality rate for Trenton for the corresponding week of last year was 13.5 and the rate for the group of cities, 9.4. The annual rate for eighty-five cities was 11.2 for the thirty-two weeks of 1933, as against a rate of 11.5 for the corresponding period of the previous year. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

NEW YORK

Course for Health Officers.—Albany Medical College in cooperation with the state department of health will offer an extension course to qualify physicians for appointment as health officers of towns under 50,000 population. The course, which will begin September 1, will consist of reading and study assignments with written tests on the completion of each. Once each month physicians will meet with the health officer of the

district in which they live for a full day of discussion and practical demonstrations. In June there will be a "residence week," during which all candidates will be assembled for a conference on public health problems. A fee of $30 will be charged.

Outbreaks of Septic Sore Throat.—An epidemic of more than 150 cases of septic sore throat in the villages of Luzerne and Hadley was reported in a recent issue of *Health News*, official bulletin of the New York State Health Department. It was found that 137 cases occurred between March 13 and June 14, and 19 cases were reported in a recurrence several weeks later. Investigation revealed that 55 per cent of the milk sold in the two villages was furnished by a single dairy and that it was not pasteurized. On one farm supplying this dairy, a cow had mastitis, from which hemolytic streptococci were isolated. There was no evidence of a case of septic sore throat in any person connected with the dairy. Instructions were given to isolate this cow, but it is believed that the infected milk was again mixed with the general supply and caused the recurrence in July. A similar outbreak involving about 200 cases is said to have occurred in and near Albion in May and June, apparently due in the main to contact infection, as no common source could be identified. Seventeen cases occurred among a group of thirty-two persons who attended a dinner in Wayland, June 28. This outbreak was attributed to unpasteurized cream purchased from a small dealer.

New York City

Medal Awarded to Dr. Dakin.—The second Conné medal has been presented by the Chemists' Club of New York to Henry D. Dakin, Sc.D., editor of the *Journal of Biological Chemistry*, in recognition of his work on antiseptic solutions. The presentation was made by Dr. Lewis H. Marks, president of the Chemists' Club, at a private dinner at Dr. Dakin's home, July 12. The Conné medal is administered by the Chemists' Club on behalf of Mrs. Madelyn Conné of New York and New Orleans, who established the award in memory of her husband, Philip A. Conné, for discoveries in chemistry. The first award was made to Dr. John J. Abel, retired professor of pharmacology, Johns Hopkins University School of Medicine, Baltimore, last year. The jury of award consisted of Daniel D. Jackson, professor of chemical engineering, Columbia University, chairman; Marston T. Bogert, Sc.D., professor of organic chemistry, Columbia; Dr. Walter W. Palmer, Bard professor of medicine, Columbia University College of Physicians and Surgeons; Dr. Leonard G. Rowntree, director, Philadelphia Institute for Medical Research, and Dr. Marks.

Group Payment Plans Not Authorized by Present Insurance Laws.—A group payment plan for hospital care recently proposed by several hospital organizations in New York constitutes insurance and cannot be established under the present insurance laws, State Superintendent George Van Schaick has ruled. In view of this opinion, advocates of the plan will carry on further study and seek appropriate legislation at the next session of the legislature, according to an announcement from the United Hospital Fund. The proposed group payment plan was worked out by a committee representing the Hospital Conference of the City of New York, hospital superintendents and the United Hospital Fund. It provides for the formation of a nonprofit membership corporation to be known as the Associated Hospital Service of New York, which would be controlled by ten directors. These directors would be chosen by the presidents of the Hospital Conference of the City of New York, the Brooklyn Hospital Council, the five county medical societies of Greater New York and the Medical Society of the State of New York and the trustees of the United Hospital Fund. The corporation would solicit members among employed groups at a rate of 90 cents a month or $10.80 a year, to be deducted from their pay, which would entitle them to three weeks of "semiprivate" hospital care during the contract year after a waiting period of ten days (except in case of accidents) and a ten months waiting period in obstetric cases. Admission to the hospital would be granted only on the recommendation of the member's personal physician, and the patient would make his own arrangement for his fees for medical service. The corporation would reimburse the hospitals at a flat rate, which the committee hoped would eventually be $7 a day. Members of the committee studying the plan are Dr. Sigismund S. Goldwater, chairman; Dr. Thomas Dwight Sloan, former president of the Hospital Conference; Louis I. Dublin, Ph.D., third vice president, Metropolitan Life Insurance Company; Dr. Alexander Lambert; Karl Eilers, president, Lenox Hill Hospital; Rev. Joseph Brophy, representing the Brooklyn Hospital Council; George A. Wilson, attorney for the United Hospital Fund; Henry C. Wright, hospital consultant, and Homer Wickenden, director of the United Hospital Fund.

NORTH CAROLINA

University News.—Dr. Walter Reece Berryhill, Cleveland, has been appointed physician to the University of North Carolina, Chapel Hill, to succeed the late Dr. Eric Alonzo Abernethy. Dr. Berryhill is at present instructor in medicine at Western Reserve University School of Medicine.

Personal.—Dr. Mary Janet Alexander, formerly of Huntsville, now head of the Nancy Fulwood Hospital, Montgomery, in the Punjab district of India, has been awarded the Kaiser i Hind Medal by the king of England, according to newspaper accounts. The award was a recognition of her work among women and children of India. Dr. Alexander went to India as a missionary.

PENNSYLVANIA

Personal.—The Squibb Fellowship at Mellon Institute, Pittsburgh, has been awarded to Harold William Coles, Ph.D., for the year July 1, 1933, to July 1, 1934, for research in pharmacology and physiology as related to local anesthetics.——Dr. Nathan F. Mossell, founder and medical director of Frederick Douglass Hospital, Philadelphia, has resigned after thirty-eight years' service.——Physicians and civic leaders of Reading recently tendered a testimonial dinner to Dr. John W. Kauffman, who retired after thirty-five years as chief of obstetrics at Reading Hospital.

SOUTH CAROLINA

Society News.—Dr. Virgil P. W. Sydenstricker, Augusta, Ga., addressed the Spartanburg County Medical Society and the staff of the Spartanburg General Hospital, June 25, on agranulocytosis.——Dr. John L. Sanders, Greenville, addressed the Greenville County Medical Society, July 3, on differential diagnosis of mastoiditis.——Physicians of Bamberg, Orangeburg and Calhoun counties at a meeting in Orangeburg, June 21, heard Bruce Mayne of the U. S. Public Health Service speak on malaria.——The fourth annual tuberculosis clinic of the South Carolina Sanatorium and the South Carolina Tuberculosis Association was held at State Park in May. Drs. Samuel M. Bittinger, Sanatorium, N. C., and George H. Bunch, Columbia, presented papers on early diagnosis and surgical procedures, respectively. Similar clinics were sponsored by the association at Spartanburg, Florence and Pinehaven.

UTAH

State Medical Meeting at Salt Lake City.—The thirty-ninth annual session of the Utah State Medical Association will be held in Salt Lake City, September 14-16, with headquarters at the Newhouse Hotel. The first day will be devoted to the Harlow Brooks Fund Post-Graduate Course at the Salt Lake General Hospital, for which the following program of addresses is announced:

Dr. Willis S. Lemon, Rochester, Minn., Pneumonia; Tuberculous Pleurisy with Effusion.
Dr. Alson R. Kilgore, San Francisco, The California Cancer Commission's Diagnosis and Treatment Survey.
Dr. Claude F. Dixon, Rochester, Minn., Carcinoma of the Rectum and Rectosigmoid.
Dr. Alfred W. Adson, Rochester, Minn., Raynaud's Disease and and Thrombo-Angiitis Obliterans.

Clinics will be conducted during the day by Drs. Clifford D. Sweet, Oakland, Calif., on pediatrics; Thomas E. Carmody, Denver, on eye, ear, nose and throat conditions; and Harlow Brooks, New York, on heart disease. Scientific meetings of the association will offer the following speakers:

Dr. Dean Lewis, Baltimore, President, American Medical Association, subject not announced.
Dr. Eugene S. Kilgore, San Francisco, Abdominal Manifestations of Circulatory Disease; Newer Concepts of Coronary Disease.
Dr. Alson R. Kilgore, Differential Diagnosis of Surgical and Non-surgical Abdominal Conditions.
Dr. Carmody, Pathologic Lesions of the Mouth of Special Interest to Physicians.
Dr. Adson, Trigeminal Neuralgia—Diagnosis and Treatment; Spinal Cord Tumors—Diagnosis and Treatment.
Dr. Ralph C. Matson, Portland, Ore., Operative Collapse Therapy of the Lung; Treatment of Chronic Empyema.
Dr. Joseph E. Tyree, Salt Lake City, Gas Bacillus Infection.
Dr. Sweet, The Child as a Patient.
Dr. Hiram Winnett Orr, Omaha, Acute and Chronic Osteomyelitis; Compound Fractures of the Femur.
Dr. J. Roscoe Miller, Chicago, Recognition and Treatment of Cardiac Arrythmias.
Dr. Lemon, Tumors of the Mediastinum.
Dr. Brooks, Coronary Thrombosis.
Dr. George W. Pierce, San Francisco, Practical Application of Reconstruction Surgery.

Dr. Frank M. McHugh, Salt Lake City, president of the association, will make his official address at the opening scientific meeting, Friday morning. The president's reception will be held at the Newhouse, Thursday evening, September 14.

VERMONT

Society News.—Dr. Philip J. Howard, Detroit, addressed the Rutland County Clinical Club, July 19, at a special meeting at Dr. George G. Marshall's camp near Mendon. Dr. Howard discussed treatment of infections in children.

WEST VIRGINIA

Society News.—Speakers at a meeting of the Central West Virginia Medical Society at Webster Springs, July 19, were Drs. Howard T. Phillips, Wheeling, on "Diagnosis and Treatment of Common Skin Diseases"; John E. Cannaday, Charleston, "Gallbladder Surgery," and Archer A. Wilson, Charleston, "Head Injuries."——Drs. Wesley C. Thomas and Joseph A. Guthrie, Huntington, addressed the Logan County Medical Society, Logan, July 19, on "Relation of Upper to Lower Respiratory Infections with Special Reference to Sinuses" and "Indigestion," respectively.——Dr. Harry G. Steele, Bluefield, addressed the Fayette County Medical Society, Oak Hill, July 11, on practical points in obstetrics.

WISCONSIN

Portrait of Dr. Harper.—Friends of Dr. Cornelius A. Harper, Madison, now in his thirtieth year as state health officer, have presented a portrait of him to the state board of health. The presentation was made, July 1, at the state capitol by Dr. William D. Stovall, director of the state laboratory of hygiene. Dr. Gustave Windesheim, Kenosha, president of the board, made the address of acceptance and Dr. Harper also spoke briefly. Dr. Harper is believed to be the senior public health official in the United States in point of unbroken full time service. In 1930 he was awarded the gold seal of the State Medical Society of Wisconsin for outstanding service in the fields of medicine and public health and also in that year he became president of the society.

Dr. Carey Appointed Dean at Marquette.—Dr. Eben J. Carey, professor and director of the department of anatomy, Marquette University School of Medicine, Milwaukee, has been appointed dean to succeed Dr. Bernard F. McGrath, who resigned recently because of ill health. Dr. Carey was for several years a member of the faculty of Creighton University School of Medicine, Omaha, where he received the degree of doctor of science in 1920. In 1920 he was appointed to the teaching position at Marquette and was in addition dean of medical students from 1920 to 1928. During this period Dr. Carey also took his medical degree at Rush Medical College, Chicago, graduating in 1925. In 1930 he was given partial leave of absence to assemble the medical exhibits at the Century of Progress Exposition in Chicago.

GENERAL

Society News.—Dr. Sterling B. Taylor, Columbus, Ohio, was elected president of the American Association of Railway Surgeons at its annual meeting in Chicago, August 10-12. Drs. George W. Cale, Jr., Texarkana, Ark., Michael J. Owens, Kansas City, Mo., and Allan B. Stewart, Owatonna, Minn., were elected vice presidents and Louis J. Mitchell, Chicago, reelected secretary.

Hotel Physicians' Advisory Board.—Announcement is made of the appointment of an advisory board to the Hotel Physicians of America, recently organized for the purpose of raising the standards of medical practice in hotels. The board includes the following physicians:

Daniel F. Mahoney, Boston
Joseph D. Nagel, New York
Henry C. Prill, Cleveland
Charles H. Peppers, Los Angeles
Frank A. Hornaday, Washington, D. C.
Harry F. Dibble, Detroit
Sherman Williams, Denver
George F. Rendleman, St. Louis
Stephen Cahana, Milwaukee
Eugene E. Scott, St. Paul
Howell E. Babcock, New York
Edward F. Addenbrooke, Chicago

Hotel physicians are invited to communicate with the secretary, Dr. Joseph R. Blake, Congress Hotel, Chicago.

Illness in Industrial Employees.—Sickness rates among industrial employees have remained almost stable for the past three years at a lower level than for the preceding three-year period 1927-1929, statisticians of the U. S. Public Health Service have found in studying a sample group representing about forty industrial establishments. The rate for respiratory disease was higher in 1932 than in 1931, because of an unusual amount of influenza last year, but, excluding influenza, other sickness rates for 1932 were the lowest since these records were begun in 1921. In spite of the higher rate for influenza, there was no increase in pneumonia. Other diseases that showed low rates in this group of the industrial population were digestive diseases in general, diseases of the skin and the group of infectious and parasitic diseases. On the other hand, the 1932 record showed slight increases in diseases of the circulatory system, especially the heart, nonindustrial injuries and certain "general diseases." Cancer remained the same as in 1931, but the rate was higher than for the 1927-1929 period.

Smallpox in the United States and Canada.—A decline in the amount of smallpox in the last three years in the United States and Canada is indicated in figures recently announced by the Metropolitan Life Insurance Company, covering forty-four states, the District of Columbia and eight Canadian provinces. Since 1930 there has been a total decline of 72 per cent in the incidence of this disease, while in 1932 alone there was a decrease of 56 per cent. More than 90 per cent of the 12,784 cases reported in the United States in 1932 occurred in less than half of the forty-four states for which figures are available. South Dakota alone reported almost 1,800 cases, and Vermont, which is the fourth smallest state in the Union in population, reported 254 cases. This is unique, it was pointed out, as Vermont is surrounded by a territory that has been singularly free from the disease for at least a decade. This territory, consisting of the rest of New England, New York and the Province of Quebec, with nearly 24 million inhabitants, reported only 345 cases during 1932. An average case fatality rate of about 3 per thousand cases was noted throughout the United States and Canada. In an outbreak of fifty-six cases in Vancouver, thirty-nine patients had never been vaccinated successfully prior to infection. The remaining victims had been vaccinated from fifteen to fifty-five years previously. No one contracted the disease who had been vaccinated within fifteen years. The epidemic was controlled by wholesale vaccination.

CORRECTION

"The Doctor."—The color reproduction of the painting "The Doctor," which appeared as a two-page color insert advertisement of Petrolagar in THE JOURNAL, July 22, carried the caption "By Sir Luke Fildes, R. A." The caption should have read "The Doctor," "After the Canvas by Sir Luke Fildes, R. A.,—Joseph Tomanek."

Government Services

Vacancies in Government Medical Service

The U. S. Civil Service Commission announces that applications will be received for the positions of medical officer, associate medical officer and assistant medical officer, which must be on file with the commission not later than September 28. In addition to a general register of eligibles, a separate register will be established for the following specialties: cardiology; child hygiene; eye, ear, nose and throat; genito-urinary (urology); internal medicine and diagnosis; neuropsychiatry; pathology and bacteriology; roentgenology; surgery (general or orthopedic); tuberculosis, and venereal disease. Entrance salaries for these positions will range from $2,600 to $3,800 a year, less a deduction not to exceed 15 per cent as a measure of economy, and a retirement deduction of 3.5 per cent. When quarters, subsistence and laundry are furnished, a further deduction is made from the salary. Applicants will not be required to report for a written examination but will be rated on education and experience. Full information may be obtained from the Civil Service Board of Examiners at the postoffice or customhouse in any city or from the commission, Washington, D. C.

Army Internships Canceled

Appointees to internships in army hospitals have been notified by the surgeon general that these positions have been abolished as a part of the federal economy program.

Two Biologists Retire

Two biologists who have served many years with the Bureau of Biological Survey of the U. S. Department of Agriculture, Mr. Vernon Bailey and Dr. Theodore S. Palmer, retired, July 1. Mr. Bailey has been a member of the bureau's staff for forty-six years and chief field naturalist since 1890. He is widely known for his studies on the geographic distribution of mammals, birds and plants. Dr. Palmer, a graduate of Georgetown University School of Medicine, has been with the bureau since 1889. At various times he has been assistant chief and acting chief of the Biological Survey, has been in charge of the division of game preservation, and since 1900 has been in charge of the regulation of the importation of foreign birds and mammals.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 5, 1933.

The British Graduate Medical School

The foundation stone of the British Post-Graduate Medical School has been laid by Mr. Neville Chamberlain, chancellor of the exchequer. The need for such a school, with a hospital, in which the now scattered graduate teaching of London could be brought together in one institution, has long been felt. But the difficulties have been so great that twelve years has elapsed since a minister of health appointed a committee to study the question. The difficulties were increased by the financial depression. The chancellor sketched the evolution of graduate teaching in London since the early nineties, when Sir Jonathan Hutchinson held afternoon demonstrations at his clinical museum, where his enormous collection of water-color drawings of disease, most of them the work of his own artists, was displayed and used for comparison with living examples. Out of that sprang the Medical Graduates College, which did valuable work in arranging lectures and demonstrations by the leading teachers of the day but had the serious defect that no hospital was attached to it. The next stage was the foundation of the Fellowship of Medicine and Post-Graduate Association, in which Osler played the leading part. The association still exists and is doing valuable work in organizing graduate lectures and teaching at the various hospitals of London. But there is the serious defect that there is no central institution for graduate work, such as exists in Berlin and Vienna. This is now remedied by the new school. The chancellor claimed that it would enable London to become the center of the most progressive medical teaching in the world. Visitors from the dominions and even from America and other parts of the world had deplored to him the necessity of being forced to go to the European continent and listen to lectures in a language which they understood only imperfectly and to get instruction they would have preferred to obtain in London.

Recommendations for Reform of Medical Services of Defense Forces

It has been shown in previous letters that the recruiting of physicians for the defense services was unsatisfactory, as the inducements compared unfavorably with those of private practice. A committee containing the heads of the three medical services (navy, army and air force) and two representatives of the civil profession (Prof. G. E. Gask, director of the surgical unit, St. Bartholomew's Hospital, and Dr. A. M. H. Gray, dean of University College Hospital Medical School) was appointed to report on the matter. Their principal conclusions are as follows: The reasons that deter medical students from entering the medical services are twofold: The career is believed to lack professional opportunity and it is not considered to offer sufficient economic attraction. The services should be reorganized on the basis of a reduced total establishment of officers by the elimination of posts that provide insufficient professional work. Professional opportunity should be further improved by all officers who make the services their life career being allowed to specialize, if qualified to do so; by specialists being enabled to spend a considerable part of their career in practicing their speciality, and by the opportunity to rise to the higher ranks without abandoning professional for administrative work.

On the economic side, reorganization would give earlier promotion, a larger proportion of officers reaching the higher ranks, a larger average pension and a longer career. Thus in the army the rank of lieutenant colonel would normally be reached at about the age of 42, instead of about 48 at present, and colonel at about 50 instead of at 53. Moreover, a large majority of officers would in future be able to reach the rank of colonel and thus to retire with a larger pension. The ages of compulsory retirement would be the same in all three services: no officer would be retired before 55, a large majority would serve to 57, and a minority would serve to 60.

SCALES OF PAY

Except for certain limited adjustments, the committee recommends no alterations in the pay scales, which it considers satisfactory provided the length of the career and the prospects of promotion are improved. In the case of the army the increase of emoluments resulting from the proposals amounts to an average of nearly $750 throughout the period of an officer's career between the ages of 35 and 50, when his family responsibilities are greatest. In the earlier and later years the improvement is $250. More officers should not be entered than is justified by the number of posts of higher responsibility available for them to fill later. The present higher establishment is unduly restricted and there should be a substantial increase in the number of officers of the ranks of surgeon commander and surgeon captain, lieutenant colonel and colonel, wing commander and group captain.

SHORT SERVICE APPOINTMENTS

Since the obligation to provide a career of adequate length and with adequate prospects of promotion appears to the committee to be an overriding one, it follows that some officers must be carried who will not be given a life career. The best way is to enter all officers in the first instance for short service. From these will be chosen each year the numbers to be retained for life service with prospects of promotion. Short service officers who do not desire permanent retention or are not chosen for it would be transferred to the reserves and given a gratuity large enough to assist them in buying a practice. The short service period would be five years, on completion of which a gratuity of $5,000 would be paid. But in the navy and air force officers would be entered in the first instance for only three years, and if they retired then the gratuity would be $2,000. This reorganization would place the services on a favorable competing basis with civil employment and attract recruits of excellent quality from the medical schools.

OVERSEAS POSTS

In the reorganized services a large proportion of the overseas and navy posts would be filled by junior officers, to whom this would be an attraction. On the other hand, the amount of this service falling on an officer of more than six years' service would be reduced. The reserve provided by officers who are not retained for life careers would more than make good the reduction recommended in the regular establishment and the position of the services on mobilization would be strengthened.

The committee also recommends the creation of a small number of scholarships open to the sons of members of the forces who wish to enter the medical services.

National Health Insurance and Unemployment

The prolonged unemployment of a large portion of the population is threatening a serious effect on national health insurance. It is calculated that at the end of the year more than 100,000 will be thrown out of insurance because of failure to pay contributions, in consequence of unemployment. The result is that they will no longer be entitled to medical attendance from the panel physicians but must resort to the public assistance medical officer. The subject was discussed at the representative meeting of the British Medical Association. One speaker suggested that public assistance committees should be asked to provide the medical attendance to which these persons had previously been entitled. But Sir Henry Brackenbury (chairman of the council) pointed out that this was impossible, as they would then constitute a favored class of public assistance patients.

The Insurance Acts Committee of the association wanted them to be attended, if possible, by their insurance physicians, already chosen. This could be achieved in only one way, which depended on the good will of the public assistance authorities. If, instead of the present system of a medical service of a limited number of physicians permanently appointed for the purpose, "the open choice method" should be adopted, the relations between patients and physicians need not be disturbed. The open choice method has already been advocated by the association for general adoption, without regard to the present emergency. It means that poor persons for whom gratuitous medical attendance is provided can select their own physicians, as under the panel system, so that every physician can be a public assistance medical officer. The obstacle to this would be financial. If the work of the public assistance physicians is greatly increased by the numbers dropping out of insurance, no doubt the public assistance authorities will be faced with demands for increased salaries. The question whether it would be more economical—and unfortunately economy is a pressing problem just now—to pay increased salaries or to pay capitation fees to physicians generally was not considered.

PARIS

(From Our Regular Correspondent)

July 12, 1933.

Combined Antidiphtheritic and Antityphoid Vaccination

Vaccination against diphtheria still remains a subject much discussed. The gravity of the disease has increased in France and in other countries, and experience shows that much heavier doses of serum must now be used against it than were used formerly, or a much more potent serum. The same is true of the vaccinations used in its prevention. Ramon's anatoxin has been continually improved by him, so that he has been able to reduce the number of inoculations from four to two, employing, at the same time, much weaker doses, which scarcely ever cause serum reactions. Furthermore, serum reactions can be completely eliminated by the previous injection of a mixture of sodium benzoate and sodium salicylate, as recommended by Vincent. The researches of Crouzon, Loiseau and Laffaille, at the Ecole des infirmières at the Hôpital de la Salpêtrière, have made known a method of reinforcing the preventive action of antidiphtheritic serum, which is remarkably effective though peculiar in its nature. It consists in combining, on the advice of Dopter, antidiphtheritic and antityphoid vaccinations. Thus not only is the subject vaccinated against two diseases but his acquired immunity toward diphtheria is reinforced in a striking manner. According to Crouzon, the Schick test in various hospitals in persons more than 19 years of age is positive in from 32 to 64 per cent of the cases. Only vaccination by the subcutaneous route gives perfect protection against diphtheria, but it is necessary to control by the Schick test the results secured. If one has a group to vaccinate, Crouzon recommends making use of the combined vaccination of Dopter (anatoxin plus antityphoid vaccine), all subjects being eliminated who do not present a Schick-positive test. The subjects presenting a negative Schick test should be vaccinated only against typhoid. One should inject, at intervals of fifteen days, 1.55 cc., 3 cc. and 3.5 cc. of a mixture of two parts anatoxin and one part heated antityphoid vaccine. It is indispensable to give three injections of antityphoid vaccine, the former technic of a single injection of 1.5 cc. having been found inadequate. At the end of six weeks, a Schick control test should be made, and the few subjects who have remained receptive should be given a fourth injection of anatoxin, the result of which also should be controlled. During the discussion at the session of the Academy of Medicine at which this communication was presented, Mr. Dopter emphasized that the immunizing potency of mixed vaccine (anatoxin plus antityphoid vaccine) is no longer discussable. From May, 1930, to November, 1932, 15,000 men in the army were vaccinated, and only twenty cases of diphtheria developed among them (1.32 per thousand). During the same period, 42,000 soldiers in the same units were not vaccinated. In this group 443 cases of diphtheria were diagnosed, or 10.54 per thousand. The high percentage of receptive recruits causes an outbreak of endemic diphtheria in the regiments, in connection with the calling in of every levy. These outbreaks will not be reduced until vaccination becomes more widespread among the civil population. .

The Relation of Lymphogranulomatosis and Tabes

Some are beginning to suspect the existence of a peculiar relation between tabes and the Nicolas-Favre disease (lymphogranulomatosis). The syphilitic origin of tabes is no longer questionable. But it appears that the lymphogranulomatous virus is capable of producing in the cord many tabetic or pseudotabetic symptoms. Ionesco-Mihaesti, Tupa, Wisner and Badenski have only secured the experimental production of an acute pseudotabetic syndrome in the monkey, by inoculation of the filtered virus of an inguinal lymphogranuloma. Since then they have observed similar cases by using the same virus applied under similar conditions and by the same route (brain and peritoneum, simultaneously). In a second article, presented by Dr. Roux, the authors reported the results of new experiments and conclude that the clinical phenomena and the histopathologic lesions invoked in the monkey by the experimental inoculation of the virus of inguinal lymphogranuloma into the peritoneum resemble in a striking manner those observed in human tabes. After a first phase characterized by motor disorders with evident paralysis of the lower limbs, a period of apparent remission varying in length sets in, during which the animal becomes more and more cachectic. At the necropsy, the histologic examination of sections prepared of the sciatic nerve revealed always the presence of inflammatory lesions. In sections derived from various cervical, dorsal and lumbar regions of the cord, one could observe a degeneration at the level of the posterior funiculus, in the region of the tracts of Burdach and Goll, presenting the typical histopathologic aspect of tabes dorsalis. These observations justify the assumption of a probable etiologic rôle assumed by the lymphogranulomatous virus in many cases of human tabes, especially since the authors have secured a positive Frei test in several cases of tabes in man. This would explain the origin of certain cases of tabes that arise without any evidence of syphilitic infection either in the personal history or from the Wassermann test, and in which the inguinal lymphogranulomatosis had passed unnoticed or had been regarded as of no importance at a time when the disease itself was not yet manifest.

Aid for Aged Physicians

In 1833, Orfila, the eminent toxicologist of Spanish extraction, who had become professor of legal medicine at the Faculté de médecine de Paris and dean of that faculty, founded the first mutual aid society among the physicians, membership being limited at first to the physicians of Paris and the department of the Seine. Later, the general association of the physicians of France was founded, but the parent society has continued to retain its independence. Orfila was supported in this endeavor by many famous physicians of that period: Paul Dubois, Desgenettes, Hippolyte Cloquet, whose names must not be forgotten, for they supplied the society with its first capital, from their own funds. The purpose of the society was to aid aged practitioners, who, after devoting themselves to the profession throughout their life, had been unable to lay aside a sufficient sum to assure a peaceful old age. Since that time the treasury of the society, as in all mutual aid societies, has been replenished by the regular contributions of its members.

But aid is given only to those physicians who actually need it, which, fortunately, is only a small percentage of the whole number. The constitution of the society authorizes today the granting of aid even to physicians who are not members and who have not made any contributions but who have been overtaken by infirmity or want. The society celebrated its centenary in ceremonies presided over by its president, Dr. Bazy, member of the Academy of Sciences and of the Academy of Medicine. The society began, a hundred years ago, with a capital of 7,000 francs ($1,370). Today it has a capital of 4,113,730 francs ($220,495, current value), supplied by contributions, which have steadily risen from 12 francs to 50 francs ($2.65), and also by legacies of wealthy physicians charitably inclined. At present the sums required for aid amount annually to 130,000 francs ($6,968, current). This fund makes possible the granting of an old age pension of 3,400 francs ($182) to certain aged confrères, and the temporary allocation of 3,200 francs ($171) to other physicians who are ill. Finally, widows of physicians, if in need, receive 1,700 francs ($91). Aid is granted to physicians not enrolled in the society, and a bed has been established at the Sanatorium des étudiants. The income from certain legacies is set apart for a large group of families; the rents from another legacy furnish a scholarship for a young man designated by a certain lycée in Paris. The only shadow across the picture traced by Professor Rathery is that the society has so small a membership (816), whereas there are more than 6,000 physicians practicing in the department of the Seine.

BERLIN

(From Our Regular Correspondent)

July 17, 1933.

Reorganization of the Public Health Service of Berlin

The activities of the executive director of the public health service (at present, the state commissar, Dr. Klein) deal with six main departments: hospital service, psychiatric service, public welfare, emergency service, general administration, financial administration. There are twenty-six municipal hospitals, with 14,000 beds, and in addition twenty-four private hospitals, with 7,000 beds, together with forty-four smaller private clinics and sanatoriums, with 4,000 beds. In all Berlin, therefore, there is a total of 25,000 beds, or seven beds for each thousand inhabitants. The municipal institutions, Dr. Klein stated, have at present many vacant beds, with the exception of the Rudolf Virchow-Krankenhaus, which will accommodate 2,750 patients and has no vacant beds. In addition, there are four municipal therapeutic and care-taking institutions, with 7,000 beds, and special homes for idiotic children and psychopaths; also several infirmaries for chronic patients and aged persons. In Berlin a steady increase in the number of mental patients under care is observable, which is to be explained by the continual shifting of the population, since persons quitting Berlin commonly leave the aged and weakly relatives to the care of the municipal welfare department.

The distribution of patients among the various institutions is effected through the Zentral-Betten-Nachweis, a department of the emergency bureau, which annually finds accommodations for about 84,000 patients, in which mediatory capacity it takes careful account of the needs and wishes of the patients. Fifty municipal ambulances are available, and, in addition, eighteen private conveyances. In supplying first aid, the bureau collaborates with the fifty emergency centers located throughout the city, nineteen of which are in charge of a physician day and night. Associated therewith is the emergency service on the lakes in the vicinity of the city.

The public welfare service devotes itself chiefly to prospective mothers and to puerperants; but also infants and preschool children come under its care. The tuberculous and the venereal patients, and the psychopaths and the cripples are under its charge. In 1932, 24,000 prospective mothers and 82,000 infants received care through these centers. School physicians examined 180,000 pupils. The school dental service cared for 140,000 children. This dental treatment signifies a great saving—especially for the krankenkassen. It can be assumed that all children on leaving school have well cared for gums and teeth.

The welfare aid service for the tuberculous is carried on in association with the Landesversicherungsamt, 160,000 persons with open tuberculosis being cared for at present. Their families likewise are receiving prophylactic care. Dr. Klein uttered a sharp warning against the Friedmann tuberculosis remedy. The welfare aid service for venereal patients in Berlin has at present 11,000 persons under medical supervision.

Until recently, the welfare aid service for the unemployed supplied medical aid through its own welfare physicians, who received a small compensation. It is planned to permit the free choice of physician, excluding, however, all but Aryan physicians.

The general administration of all these departments is in the hands of the bureau of health (Städtisches Hauptgesundheitsamt), in which are located also the bacteriologic institute and the chemical institute. About 500,000 examinations annually are made therein. Also the drinking water is controlled here.

The budget of the Berlin public health service amounted, in 1930, to about 125,000,000 marks ($29,750,000). The budget for 1933 was originally placed at 84,000,000 marks ($20,000,000), but owing to the financial condition of the city it has been reduced to 65,000,000 marks ($15,470,000). A further reduction may, however, be necessary. The budgetary allowance for the hospitals is $9,044,000; for the suppression of epidemics, $1,927,800; for the psychiatric service, $3,094,000; for public welfare, $2,213,400. The public welfare service, Dr. Klein thinks, is being carried too far. The rendering of aid through a person's whole life is contrary to the principles of the national-socialists, who place the chief emphasis on the preservation of the healthy portions of the population—in number and in quality.

Changes in Management of the Robert Koch Institute

The Robert Koch Institute for infectious diseases, in Berlin, originally under the direction of Koch himself, was, for many years, under the directorship of Prof. Fred Neufeld, who has become known through his researches on tuberculosis. Prof. Karl Friedrich Kleine, who, for many years, has been a department director at the institute, has been appointed his successor. Kleine was one of the intimate collaborators of Robert Koch. In 1906, he was the director of the trypanosomiasis expedition. Later, he served as director of the crusade against trypanosomiasis in German East Africa. He was the first investigator who transmitted sleeping sickness to apes through the natural intermediate host, the tsetse fly (Glossina).

Eugenics as a New Subject for Medical Students

Frick, federal minister of the interior, has stated that arrangements must be made to give adequate attention to the science of hereditary health, in all grades of public instruction. The state commissar for the Bavarian public health service has approved the introduction of eugenics as a required examination subject in the medical curriculum. Professor Lenz of Munich, an authority on race hygiene, has given his views on the proposed plan in the *Münchener medizinische Wochenschrift*. He insists that race hygiene should be an independent main subject for study. It is not enough to make it a part of the required lectures on hygiene. He recommends that new special chairs for race hygiene be established. A course of lectures on genetics should be added to the preclinical studies as a required subject. For the clinical period, two new four-hour courses of lectures should be made obligatory: (1) hereditary transmission in man and (2) sociological and biologic bases of race hygiene. As

the introduction of an entirely new main subject appears impossible without changing the remainder of the curriculum, Lenz suggests a lengthening of the semesters. He thinks the short summer semester should be replaced by a full-length fall semester extending from September to December, and for the winter semester a spring semester extending from February to May should be substituted. In addition, he proposed the organization of a two-hour course on methods of human hereditary research in the winter, and a two-hour "colloquium" in the summer, for persons having a special interest in the subject. The directors of the Verband deutscher Medizinerschaften (league of medical students' associations) emphasize that, if such courses are to be introduced, it presupposes a far-reaching reorganization of the medical curriculum, in order to preserve the standards of medical education in general.

JAPAN

(From Our Regular Correspondent)

June 27, 1933.

The Increasing Population

The statistical bureau reports a remarkable increase in the population in 1932. The births numbered 2,182,743, an average of 249 per hour. The deaths numbered 1,174,875, an average of 134 per hour. The death rate was the lowest one during the last half century. The increase of the population was therefore 1,007,868; in 1931 it was 861,534.

Beds for Tuberculous Patients

According to the report of the home office, the government hospitals and sanatoriums for tuberculosis number sixty, with 4,376 beds, and the private ones number 329, with 5,369 beds. In addition there are twenty-five secondary sanatoriums with 3,857 beds. At the annual conference of health experts in Tokyo recently the question of establishing sanatoriums was discussed that the government might keenly feel the urgent necessity of isolating the serious cases of tuberculosis in order to prevent the rapid spread of the disease. But this work must be done on a large scale to achieve the purpose, and it will require about 10,000,000 yen. The tuberculosis prevention conference decided to present a resolution to the government urging an increase of 3,000 beds every year. The plan is to add 2,000 new beds every year. For the other 1,000 beds, vacancies in hospitals will be used. There are many such vacant beds. Those beds may readily be occupied at an expense of 600 yen a year. Such private organizations as the Red Cross or other charity hospitals will be encouraged to increase their beds every year in order to have about 120,000 beds for tuberculous patients.

Fiftieth Anniversary Medical School

The Jikei (charity) kai (society) medical school, founded by the late Baron Takagi in 1881, has graduated 3,338 students. It is one of the most distinguished private medical schools in Japan. June 6, the school celebrated its fiftieth anniversary as its new buildings were completed. Princess Takeda, the honorary president of the society, the prime minister, ministers of home affairs and education, and Prince Tokugawa were present. The emperor gave a donation. Four professors gave memorial lectures before the guests.

Celebration of the Completion of St. Luke's Hospital

After five years of construction, St. Luke's International Hospital celebrated its completion, June 5. Its ground lot amounts to about 3 acres and the seven story building has a floor space of about one acre. Prince Takamatsu, the younger brother of the emperor, was present. The other guests were the American ambassador, cabinet members and members of the American-Japanese Association, totaling about 300. The hospital is fireproof, is equipped with electricity, has an excellent water supply, and is constructed with a view to withstanding earthquakes. The hospital has 475 beds, excluding fourteen beds for isolated patients.

Japanese Physicians in Foreign Lands

According to the reports made annually in March by the Japanese consuls in foreign countries, the Japanese practitioners residing there have of late remarkably decreased in number, especially in America and its territories. The greatest number of those is fifty-two practitioners in Honolulu, and the next is twenty-four in Los Angeles, but there had been twice as many before. In the Orient, the Philippine Islands have been said to be the place where Japanese doctors flourish most, but today there are only one third of the former number. The cause is not clear but may be attributed to the general depression.

Diathermy Machines and the Radio

For the first time in this country, a civil action has been brought against disturbing radio reception. Last December a private practitioner in Tokyo had a diathermy machine installed in his office for the purpose of electrotherapy. The radios in his vicinity became almost inaudible while the machine was in use. More than 150 listeners formed a group to protest against the monthly charge for their radio, on the ground that radio reception was impossible. The broadcasting station warned the doctor to prevent the disturbance. Unfortunately, in Japan there is no law against radio disturbance. With a view to obtaining a favorable judicial precedent, the broadcasting station brought a civil action. The decision of the court will be of great importance.

Athletics and the Health of Girls

Sports and games among young girls, especially school girls, are arousing great apprehension among parents about their health. Prof. Dr. M. Iwata of the Nohon Medical College reports, after examining 418 of those who had won championships, that 86.9 per cent began their athletic activities before they were 14 years of age and 86.7 per cent before menstruation began. The first menstruation of these girls began almost the same as that of school girls in general, but it was very irregular. According to other investigations, irregularity of menstruation of school girls in general averaged from 32.6 to 37.9 per cent, but that of the female athletes averaged 50.6 per cent. Pain with menstruation in the former was reported as from 38.09 to 48.39 per cent; in the latter, 56.33 per cent. Since the Labor Science Research Institute reports that the complete development of Japanese women occurs at the age of 18, younger girls should refrain from strenuous athletics for at least from one-half to one year after menstruation has become regularly established.

Marriages

JOSEPH FREDERICK GALLOWAY, Pereira, Colombia, South America, to Miss Leila Ford of Huntsville, Ala., at Montevallo, Ala., July 8.

FREDERICK RANDALL EASTLAND, National Soldiers Home, Va., to Miss Muriel Mann of Pittsburgh, June 20.

CLARENCE BRYAN FLANAGAN, Menominee, Mich., to Miss Leona Lavigne of Norway, June 26.

CARL H. ERNLUND, Boston, to Miss Lucy Maxwell Hodge of Princeton, N. J., July 15.

VINCENT J. FARRELL to Miss Ursula Helen O'Connor, both of Philadelphia, July 3.

PERCY CHANDLER GRIGG, Iloilo, P. I., to Miss Pauline Holland, April 15.

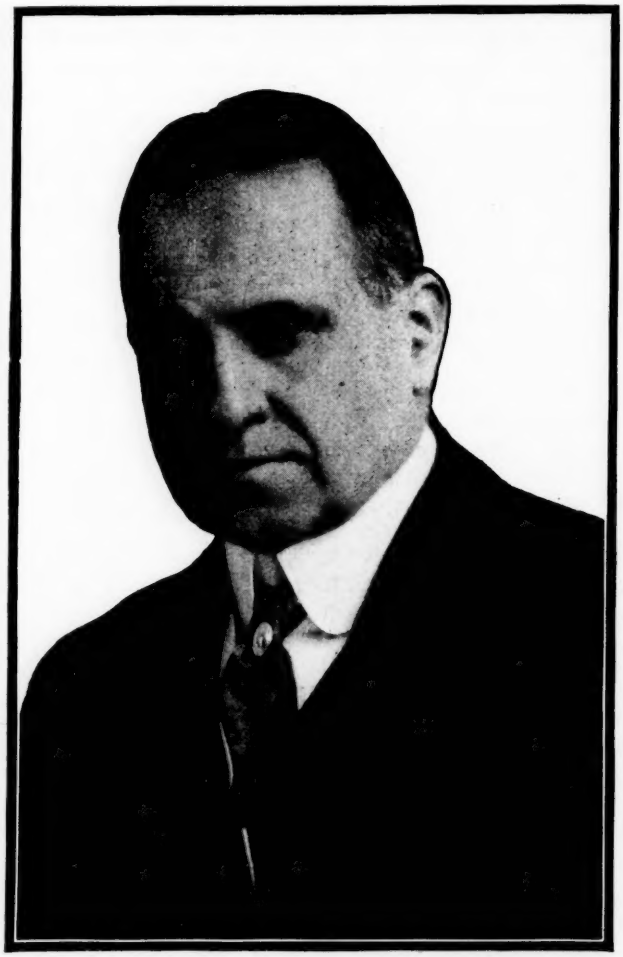
BEN F. EAGER, JR., San Diego, Calif., to Miss Elizabeth Hicks, May 26.

Deaths

John Milton Dodson ✠ for many years dean of Rush Medical College, more recently director of the Bureau of Health and Public Instruction of the American Medical Association, and at the time of his death retired, died at his home in Chicago, August 15, aged 74 years, of uremia. Dr. Dodson was born in Berlin, Wis., Feb. 17, 1859. Following his education in the University of Wisconsin (A.B. 1880), he entered Rush Medical College, receiving his M.D. degree in 1882, and subsequently the M.D. degree from Jefferson Medical College in 1883. He also received the A.M. degree from the University of Wisconsin in 1887. He became demonstrator of anatomy in Rush Medical College in 1889 and professor of physiology in 1891, holding the two positions coincidentally until 1898. He then became professor of diseases of children, having held a similar position in the Woman's Medical College of Chicago from 1894 to 1897. In 1898 he became dean of Rush Medical College and coincidentally dean of medical students in the University of Chicago, holding both of these positions until 1923. In that year he was made executive secretary of the Bureau of Health and Public Instruction of the American Medical Association, in which capacity he was also associated with the editorial staff of *Hygeia*, being largely responsible for the department of Questions and Answers.

Dr. Dodson at one time was a trustee of the Chicago Medical Society and had been president of the Chicago Pediatric Society and also of the Chicago Pathological Society. During his career he contributed largely to medical periodical literature. During the World War he was medical adviser to the governor of Illinois and held the rank of Major in the Army Medical Corps. His membership in scientific organizations included the American Association of Anatomists, American Society for the Advancement of Science, the American Conference on Hospital Service and the American Veterans of the World War.

As dean of students in Rush Medical College, Dr. Dodson was especially beloved by those who came under his tutelage. The Alumni Association of Rush Medical College held a special banquet in his honor, presented him with a testimonial volume, and established a lectureship in his name. He was a well educated physician, with a fine appreciation of the classics of both medicine and literature generally. He was congenial, and his numerous friendships with physicians throughout the country testify to their appreciation of his fine qualities as a physician and as a man.



JOHN MILTON DODSON, M.D., 1859-1933

Arthur Bennett Rankin, Chicago; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1906; formerly instructor of orthopedic surgery, Northwestern University Medical School, professor and head of the department of anatomy, and associate professor of surgery, Loyola University School of Medicine; served with the Canadian Army during the World War; on the staffs of the Woodlawn, St. Bernard's, Illinois Central and Washington Park Community hospitals; attending surgeon to the Cook County Hospital, 1916-1918; aged 50; died, July 24, of coronary thrombosis.

John Anson Burket ✠ Lieut., Colonel, U. S. Army, retired, Palo Alto, Calif.; State University of Iowa College of Medicine, Iowa City, 1907; entered the medical corps of the U. S. Army in 1910 as a first lieutenant; served during the World War; was made a major in 1917, and retired in 1922; by an act of Congress in 1930 he was promoted lieutenant colonel, retired; on the staff of the Veterans' Administration Hospital; aged 51; died suddenly, July 9, of heart disease.

Wenzel Carl Gayler ✠ St. Louis; Beaumont Hospital Medical College, St. Louis, 1901; past president of the Missouri State Medical Association; fellow of the American College of Surgeons; senior instructor in gynecology and obstetrics, St. Louis University School of Medicine; served during the World War; aged 56; on the staffs of St. Anthony's Hospital and the Evangelical Deaconess Hospital, where he died, July 12, following an operation for brain tumor.

Edwin Willis Rich ✠ Col., U. S. Army, retired, Coronado, Calif.; Harvard University Medical School, Boston, 1900; entered the army as an assistant surgeon in 1901; was made a captain in the medical corps in 1906, and a major in 1912; served during the World War; retired in 1922 as a lieutenant colonel; by an act of Congress in June, 1930, he was promoted to colonel, retired; aged 61; died, July 12.

George K. Throckmorton ✠ La Fayette, Ind.; Rush Medical College, Chicago, 1887; fellow of the American College of Surgeons; formerly secretary of the county board of health, member of the city board of health and coroner; on the staffs of the La Fayette Home Hospital and St. Elizabeth's Hospital; aged 71; died, July 17, of heart disease.

Shannon Laurie Van Valzah ✠ Major, M. C., U. S. Army, Denver; Johns Hopkins University School of Medicine, Baltimore, 1914; served during the World War; entered the medical corps of the U. S. Army as a first lieutenant in 1917 and was made a major in 1918; aged 45; died, July 11, of diverticulitis of the sigmoid and peritonitis.

Benjamin Frank Johnson, Winchester, Ky.; University of Louisville School of Medicine, 1885; Hospital College of Medicine, Louisville, 1886; member of the Kentucky State Medical Association; past president of the Clark County Medical Society; formerly member of the city board of health; aged 67; died, July 14, of heart disease.

Webster Fels Keller, Los Angeles; Medical Department of the University of Cincinnati, 1913; assistant professor of surgery in the department of ophthalmology, College of Medical Evangelists; served during the World War; on the staff of the White Memorial Hospital; aged 44; died, June 25, of bronchopneumonia.

Leon George Brackett, Waukegan, Ill.; Chicago College of Medicine and Surgery, 1917; member of the Illinois State Medical Society; served during the World War; on the staff of the Lake County General Hospital; aged 47; died, July 19, in the Barnes Hospital, St. Louis, of cancer of the mediastinum.

Joseph S. McBride, Lyons, Kan.; Kansas City Medical College, 1898; member of the Kansas Medical Society; past president of the Rice County Medical Society; served during the World War; on the staff of the Lyons Hospital; aged 65; died suddenly, July 6, of myocarditis.

Hubert Augustus Castle, Pocatello, Idaho; Missouri Medical College, St. Louis, 1881; member of the Idaho State Medical Association; formerly member of the state board of medical examiners; aged 73; died, May 31, of cerebral hemorrhage and paraplegia.

Charles Alexander Rogers, Bakersfield, Calif.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; Rush Medical College, Chicago, 1879; veteran of the Spanish-American War; aged 82; died, June 13, of a fractured hip received in a fall.

Walter James Brinckerhoff, Brooklyn; Long Island College Hospital, Brooklyn, 1892; aged 63; died, July 18, in the Long Island College Hospital, of cerebral arteriosclerosis with cerebral thrombosis and lobar pneumonia.

Garrett Rittenhouse Miller ✠ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1925; on the staff of the Episcopal Hospital; aged 33; died, July 12, in the University Hospital, of heart disease.

Charles E. Boynton, Chicago; Hahnemann Medical College and Hospital, Chicago, 1891; member of the Illinois State Medical Society; aged 73; died, July 20, of injuries received when struck by an automobile.

John Van Rensselaer, Washington, D. C.; Columbian University Medical Department, Washington, 1889; member of the Medical Society of the District of Columbia; aged 70; died, July 8, at Kittery, Maine.

Robert Bruce Grimes, Jr., Philadelphia; Medico-Chirurgical College of Philadelphia, 1901; veteran of the Spanish-American and World wars; aged 58; died, July 17, in the U. S. Naval Hospital.

Leonard Harrison English, Mountain Lakes, N. J.; George Washington School of Medicine, Washington, 1913; served during the World War; aged 51; died, July 12, of poison, self-administered.

Karl E. Gryttenholm, Zumbrota, Minn.; King Fredericks University Faculty of Medicine, Christiania, Norway, 1891; aged 70; died, July 11, in a hospital at Red Wing, of acute myocarditis and asthma.

Benjamin Franklin West ✠ Seattle; Miami Medical College, Cincinnati, 1881; formerly a medical missionary; aged 75; died, July 2, of angina pectoris, arteriosclerosis, adenomatosis and enlarged thyroid.

Henry R. Pascoe ✠ Carroll, Iowa; Northwestern University Medical School, Chicago, 1906; aged 55; on the staff of St. Anthony's Hospital, where he died, July 7, of cardiac thrombosis.

Lem H. Lipsey, Wynne, Ark.; University of Louisville (Ky.) School of Medicine, 1891; member of the Arkansas Medical Society; aged 65; died, July 12, of carcinoma of the throat.

Lester Everett Smith, Tyler, Texas; University of Vermont College of Medicine, Burlington, 1899; served during the World War; aged 59; died, July 5, of acute pyelonephritis.

Louis A. Gaudin, Convent, La.; Tulane University of Louisiana Medical Department, New Orleans, 1894; aged 63; died, June 18, in the Hotel Dieu Hospital, New Orleans.

John Michael Fitzpatrick, Chicago; Loyola University School of Medicine, Chicago, 1919; aged 49; died, June 28, in a hospital at Detroit, of generalized peritonitis.

Roy Clarence Seaman, Cherokee, Iowa; Bennett College of Eclectic Medicine and Surgery, Chicago, 1906; aged 55; died suddenly, July 9, of cerebral hemorrhage.

Minard Roger Renshaw, Seattle; St. Louis University School of Medicine, 1932; intern at the Columbus Hospital; aged 29; died, June 5, of Banti's disease.

George M. Denton, Manila, Ark. (licensed, Arkansas, 1909); aged 52; was found dead, July 8, of chloroform poisoning, presumably self-administered.

Ellen Dean Moore, Santa Rosa, Calif.; Cooper Medical College, San Francisco, 1889; aged 88; died, June 15, of chronic myocarditis and hypertension.

Miriam Bitting Kennedy, Bala-Cynwyd, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1889; aged 68; died, June 23, of carcinoma.

Edwin Graves Kirby, La Grande, Ore.; Willamette University Medical Department, Salem, 1900; aged 62; died, July 2, of cerebral hemorrhage.

Edgar R. Browning, Flint Hill, Va.; University of Maryland School of Medicine, Baltimore, 1895; aged 62; died, July 8, of heart disease.

W. L. Hancock, Lebanon, Tenn.; University of Louisville (Ky.) School of Medicine, 1874; aged 81; died, June 27, of colitis.

Albert E. Hofer, Marion, S. D.; Barnes Medical College, St. Louis, 1900; aged 55; died, in June, of heart disease.

Milton H. Virden, Los Angeles; Ohio Medical University, Columbus, 1895; aged 73; died, June 19, of heart disease.

Bureau of Investigation

MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE: The abstracts that follow are given in the briefest possible form: (1) the name of the product; (2) the name of the manufacturer, shipper or consigner; (3) the composition; (4) the type of nostrum; (5) the reason for the charge of misbranding and (6) the date of issuance of the Notice of Judgment—which may be considerably later than the date of the seizure of the product.]

Emsules.—H. Planten & Son, Inc., Brooklyn, N. Y. Composition: A fatty oil, also volatile oils including pennyroyal, savin and parsley oil. For menstrual disorders. Fraudulent therapeutic claims.—[*N. J. 19055; July, 1932.*]

Elder Hook's Healing Balm.—A. Perley Fitch Co., Concord, N. H. Composition: Essentially a volatile, oil such as pineneedle oil, in an ointment base. For diphtheria, asthma, consumption, piles, etc. Fraudulent therapeutic claims.—[*N. J. 19058; July, 1932.*]

W. H. D. Special Medicine.—W. H. D. Special Mfg. Co., Woodston, Kan. Composition: Essentially magnesium carbonate and baking soda. For blood and stomach disorders, rheumatism, kidney trouble, etc. Fraudulent therapeutic claims.—[*N. J. 19062; July, 1932.*]

Gray's Helpuall.—Gray Helpuall Co., Hillsboro, N. H. Composition: Essentially peppermint oil, camphor, methyl salicylate and petrolatum. For catarrh, rheumatism, skin disorders, etc. Fraudulent therapeutic claims.—[*N. J. 19063; July, 1932*]

Innerclean.—Innerclean Mfg. Co., Los Angeles. Composition: Senna leaves (50 per cent), cascara sagrada or a similar bark (about 30 per cent), anise seed and sassafras bark (about 10 per cent each). For constipation, etc. False and fraudulent therapeutic claims.—[*N. J. 19066; July, 1932.*]

Jurgelwicz's Anti-Rheumatic Mixture.—Mrs. E. A. Jurgelwicz, New Orleans. Composition: Potassium iodide, sodium salicylate, and a plant drug such as podophyllum, with glycerine and water. Fraudulent therapeutic claims.—[*N. J. 19067; July, 1932.*]

Humphrey's Bromated Pepsin.—Humphrey Drug & Chemical Co., Newark, N. J. Composition: Essentially acetanilid, baking soda, sodium acid tartrate, sodium citrate, citric acid, and small quantities of sodium bromide, caffeine, a bismuth compound. For "nervous debility," indigestion, liver and kidney troubles, dyspepsia, etc. Misbranded because represented to contain pepsin, which was not found; also misbranded because of fraudulent therapeutic claims.—[*N. J. 19068; July, 1932.*]

Can-U-Til-Lo Herb.—Can-U-Til-Lo Co., Camden, N. J. Composition: Coarsely cut caynote *(Ephedra antisyphilitica).* For rheumatism, kidney and blood disorders. Fraudulent therapeutic claims.—[*N. J. 19074; July, 1932.*]

Dunbar's System Tonic.—Lee Specialty Co., Detroit, Mich. Composition: Pills containing, essentially, extracts of plant drugs, including a laxative drug and iron (ferrous) sulphate. For rheumatism, blood, liver and kidney disorders, etc. Fraudulent therapeutic claims.—[*N. J. 1075; July, 1932.*]

Luesol.—Lipoidal Laboratories, Inc., New York. Composition: Essentially a mercury compound, iodide, sulphate, extracts of plant drugs and water. For syphilis. Fraudulent therapeutic claims.—[*N. J. 19151; October 10, 1932.*]

Osmogen.—Lipoidal Laboratories, Inc., New York. Composition: Essentially iodide, phosphate, extracts of plant drugs and water. For diabetes. Fraudulent therapeutic claims.—[*N. J. 19151; October 10, 1932.*]

Pierce's (Robert J.) Special Formula Double Strength Tablets.—Robert J. Pierce, Inc., New York. Composition: Essentially iron sulphate, extracts of plant drugs, including aloe, and volatile oil, including pennyroyal. A female regulator. Fraudulent therapeutic claims.—[*N. J. 19152; Oct. 10, 1932.*]

Fayro.—Kells Co., Newburgh, N. Y. Composition: Essentially epsom salt (87 per cent) and rock salt (13 per cent), with a small amount of an aromatic oil. For obesity. Fraudulent therapeutic claims.—[*N. J. 19155; Oct. 10, 1932.*]

Duncan's Ozon.—Duncan Chemical Co., St. Louis. Composition: Essentially pine oil. For rheumatism, kidney and bladder trouble, indigestion, pyorrhea, etc. False and misleading therapeutic claims.—[*N. J. 19156; Oct. 10, 1932.*]

Takara Hygienic Powder.—Takara Laboratories, Portland, Ore. Composition: Essentially boric acid, ammonia alum, carbolic acid, and a trace of menthol. Falsely claimed to be antiseptic. For "feminine hygiene," etc. Fraudulent therapeutic claims.—[*N. J. 19371; November, 1932.*]

Simmons Four-Fold Salve.—Wm. R. Warner Co., St. Louis. Composition: Essentially petroleum (90 per cent) and volatile oils (10 per cent), including camphor, menthol and methyl salicylate. For pneumonia, asthma, rheumatism, etc. Fraudulent therapeutic claims.—[*N. J. 19467; December, 1932.*]

Walker's Old Indian Health Tonic.—Walker Medicine Co., Atlanta, Ga. Composition: Epsom salt, iron (ferric) chloride, quinine sulphate and water. For indigestion, kidney and bladder troubles, dropsy, etc. Fraudulent therapeutic claims.—[*N. J. 19162; Oct. 10, 1932.*]

J & J Analgesic.—Johnson & Johnson, New Brunswick, N. J. Composition: Volatile oils (11.8 per cent), including menthol, camphor and methyl salicylate, boric acid (0.5 per cent), gummy material such as Irish moss (22.1 per cent), with 65.6 per cent of water. For headache, rheumatism, laryngitis, etc. Fraudulent therapeutic claims.—[*N. J. 19167; Oct. 10, 1932.*]

Cholegestin.—F. H. Strong Co., New York. Composition: Sodium salicylate, baking soda, glauber's salts, bile salts, alcohol (13.7 per cent by volume) and water. For intestinal dyspepsia, gaseous indigestion, etc. Fraudulent therapeutic claims.—[*N. J. 19168; Oct. 10, 1932.*]

Lambert's Powders.—Lambert's Inc., Minneapolis. Composition: Essentially aspirin (nearly 7 grains to each powder) and acetanilide (2.3 grains to each powder). For rheumatism, neuralgia, la grippe, etc. Misbranded because amount of acetanilide was not declared on label. Fraudulent therapeutic claims.—[*N. J. 19169; Oct. 10, 1932.*]

Ozo Mist.—Adson Chemical Co., Inc., Buffalo. Composition: Essentially volatile oil (36 per cent by volume), including methyl salicylate, menthol and eucalyptol, alcohol (58 per cent by volume), and water. For hay fever, catarrh, asthma, etc. Misbranded because alcohol content was incorrectly stated. Fraudulent therapeutic claims.—[*N. J. 19170; Oct. 10, 1932.*]

I-Heal-I-Tone.—Shapley Drug Co., Inc., Deland, Ill. Composition: Essentially borax, zinc sulphate, and a trace of thymol. For skin disorders, leucorrhea, catarrh, hay fever, influenza, etc. Falsely claimed to be antiseptic. Fraudulent therapeutic claims.—[*N. J. 19171; Oct. 10, 1932.*]

Shapley's Vegetable Prescription.—Shapley Drug Co., Inc., Deland, Ill. Composition: Essentially plants drugs, including valerian, alcohol (14.3 per cent by volume), sugar and water. For female disorders. Fraudulent therapeutic claims.—[*N. J. 19171; Oct. 10, 1932.*]

Shapley's Liver Tonic.—Shapley Drug Co., Inc., Deland, Ill. Composition: Pills containing phenolphthalein. Fraudulent therapeutic claims.—[*N. J. 19171; Oct. 10, 1932.*]

Shapley's Derol.—Shapley Drug Co., Inc., Deland, Ill. Composition: Essentially mineral oil and volatile oils, including menthol and eucalyptol. For nose and throat troubles. Fraudulent therapeutic claims.—[*N. J. 19171; Oct. 10, 1932.*]

Shapley's Tonup.—Shapley Drug Co., Inc., Deland, Ill. Composition: Essentially plant drugs, including a laxative, with small amounts of calcium, magnesium and phosphorus compounds, with water and 5.3 per cent of alcohol. Tonic and "blood purifier." Fraudulent therapeutic claims.—[*N. J. 19171; Oct. 10, 1932.*]

Nalther Tablets.—M. A. Winter Co., Washington, D. C. Composition: Red pepper, spearmint and laxative drugs, including rhubarb, senna and aloe. For stomach, intestinal, liver and kidney disorders. Fraudulent therapeutic claims.—[*N. J. 19172; Oct. 10, 1932.*]

Flaxo.—Flaxo Co., Saginaw, Mich. Composition: Essentially fatty oils, such as linseed, with rosin and petrolatum. For infections, blood poisoning, boils, etc. Falsely claimed to be antiseptic. Fraudulent therapeutic claims.—[*N. J. 19173; Oct. 10, 1932.*]

Old Dr. Wesson's Angel of Peace and Solace of Life.—Brewer & Co., Inc., Worcester, Mass. Composition: Essentially alcohol (87.5 per cent by volume), chloroform (4.24 minims per fluidounce), ether, oleoresin, red pepper and volatile oils, including pine cajuput, menthol and camphor, colored red. For rheumatism, diarrhea, coughs, catarrh, etc. Chloroform content falsely declared. Fraudulent therapeutic claims.—[*N. J. 19176; Oct. 10, 1932.*]

Children's Comfort.—Brewer & Co., Inc., Worcester, Mass. Composition: Essentially a syrup containing a small proportion of extracts of plant drugs, flavored with anise oil. For dysentery, felons, colic, etc. Fraudulent therapeutic claims.—[*N. J. 19176; Oct. 10, 1932.*]

Rider's Household Liniment.—Haggard Rider, San Diego, Cal. Composition: Essentially a light mineral oil, such as gasoline, containing a trace of a vesicating agent, such as red pepper extract, and a trace of volatile vegetable oil, such as sassafras. For muscular rheumatism, bronchial cough, pleurisy, etc. Fraudulent therapeutic claims.—[*N. J. 19177; Oct. 10, 1932.*]

Hulbert's Phospho-Nux.—N. E. Hulbert & Co., New York. Composition: Essentially plant drug extracts, including nux vomica, with phosphorus, chloroform, alcohol and water. An alleged cerebrospinal tonic. Fraudulent therapeutic claims.—[*N. J. 19178; Oct. 10, 1932.*]

Analgesol.—Emde Pharmacal Co., Rahway, N. J. Composition: Essentially volatile oils, such as tar and turpentine oils, in an ointment base such as hydrous wool fat. For whooping cough, asthma, hay fever, etc. False and fraudulent therapeutic claims.—[*N. J. 19181; Oct. 10, 1932.*]

Jones Vegetable Herb Tablets.—Christiani Drug Co., Washington, D. C. Composition: Extracts of plant materials, including aloe and podophyllum. For "blood, kidney and liver," etc. Fraudulent therapeutic claims.—[*N. J. 19186; Oct. 10, 1932.*]

Sal-Va-Sena.—Millin Drug Co., Memphis, Tenn. Composition: Essentially epsom salt with iron, chloride, an extract from a laxative plant drug such as senna, and water. For kidney and liver disorders, etc. Fraudulent therapeutic claims.—[*N. J. 19189; Oct. 10, 1932.*]

Dill's Balm.—Dill Co., Norristown, Pa. Composition: Essentially ammonia, volatile oils including sassafras and cinnamon, with camphor, extracts of plant drugs, alcohol (61.8 per cent by volume) and water. For colic, diarrhea, cholera morbus, etc. Fraudulent therapeutic claims.—[*N. J. 19191; Oct. 10, 1932.*]

Hale's Household Tea.—Kenyon & Thomas Co., Adams, N. Y. Composition: Plant drugs including senna, buckthorn, goose grass (galium), teucrium and Oregon grape root (berberis). For blood and nerve disorders, catarrh, piles, etc. Fraudulent therapeutic claims.—[*N. J. 19192; Oct. 10, 1932.*]

Betalax.—Betalax Co., Inc., Mount Vernon, N. Y. Composition: Essentially hydrate magnesium oxide, sugar of milk and small amounts of magnesium carbonate, and oils of peppermint and anise. For indigestion, gastritis, etc. Falsely claimed to be an intestinal antiseptic.—[*N. J. 19193; Oct. 10, 1932.*]

Wilson's (B. O. and G. C.) Neuropathic Drops.—Winsol Inc., Boston. Composition: Essentially oleoresin of red pepper, volatile oils including camphor and a mint oil, with alcohol and water. For chills, cramps, cholera morbus, etc. Fraudulent therapeutic claims.—[*N. J. 19195; Oct. 10, 1932.*]

Shults' Infallible Ointment.—Shults Ointment Co., Chester, Pa. Composition: Essentially lead oleate and a tarry oil in an ointment base of wool fat and petrolatum. For sores, syphilitic ulcers, erysipelas, piles, etc. Fraudulent therapeutic claims.—[*N. J. 19196; Oct. 10, 1932.*]

Lynn's Blood Remedy.—S. Pfeiffer Manufacturing Co., St. Louis. Composition: Essentially iron and ammonium citrate, potassium iodide, extracts of plant drugs such as sarsaparilla, senna and cascara sagrada, with sugar and water. For blood and liver disorders, etc. Fraudulent therapeutic claims.—[*N. J. 19198; Oct. 10, 1932.*]

Penor's Antiseptic Uterine Tablets.—G. D. Stoner Co., Lakeland, Fla. Composition: Essentially common salt. For female disorders, cancer, etc. Fraudulent therapeutic claims.—[*N. J. 19199; Oct. 10, 1932.*]

Seven Aids to Health.—Dunn Medicine Co., Inc., Birmingham, Ala. Composition: Epsom salt, iron and ammonium citrates, sodium phosphate and sodium salicylate, flavored with saccharine and oil of cinnamon. For blood, kidney and stomach disorders, etc. Fraudulent therapeutic claims.—[*N. J. 19200; Oct. 10, 1932.*]

Morrison's Old English Liniment.—James W. Foster Co., Bath, N. H. Composition: Essentially a nonvolatile oil, such as fish oil, and volatile oils, such as pine-tar oil, turpentine oil and kerosene. Fraudulent therapeutic claims.—[*N. J. 19351; November, 1932.*]

O and O Medicine.—Pabst Chemical Co., Chicago. Composition: Essentially volatile oils, resins, alcohol and water. For venereal diseases. Fraudulent therapeutic claims.—[*N. J. 19358; November, 1932.*]

Keros.—Continental Laboratories, Inc., New York. Composition: Essentially boric acid, carbonates, an organic acid and a trace of oxyquinoline sulphate. For leucorrhea, vaginitis and "as a prophylactic against infection, specific or otherwise." Fraudulent therapeutic claims.—[*N. J. 19359; November, 1932.*]

Glyco-tan-phene.—Hagedon Chemical Co., Indianapolis. Composition: Small proportions of carbolic acid, tannin and menthol with glycerine and water. For tonsillitis, pyorrhea, etc. Falsely claimed to be antiseptic. Fraudulent therapeutic claims.—[*N. J. 19360; November, 1932.*]

Ward's Kidney and Backache Pills.—Ward's Medical Co., Winona, Minn. Composition: Saltpeter, methylene blue and extracts of plant drugs, including bear berry, buchu and juniper. Fraudulent therapeutic claims.—[*N. J. 19363; November, 1932.*]

Ward's Kidney and Bladder Medicine.—Ward's Medical Co., Winona, Minn. Composition: Sodium phosphate (11 per cent), sodium acetate (1.5 per cent), sodium benzoate (0.3 per cent), extracts of plant drugs including bear berry and a laxative drug, vanillin and coumarin flavoring, with glycerine and water. Fraudulent therapeutic claims.—[*N. J. 19363; November, 1932.*]

Capillaris-X.—Capillaris Manufacturing Co., Montclair, N. J. Composition: Essentially a petrolatum base containing ammoniated mercury and boric acid. For scalp and skin diseases, etc. Fraudulent therapeutic claims.—[*N. J. 19366; November, 1932.*]

Gly-Cas.—Glycas Medicine Co., Indianapolis. Composition: Capsules containing extracts of plant drugs including aloe, and a small amount of an iron compound. For rheumatism, blood and nerve disorders, etc. Fraudulent therapeutic claims.—[*N. J. 19367; November, 1932.*]

Stomach-Rite.—John Wilbur, Daughter Co., Inc., Westerly, R. I. Composition: White tablets, about 8 grains of chalk, about 1½ grains of baking soda, with starch and sugar; pink tablets, red pepper and laxative drugs such as aloin and podophyllum extract. For stomach and liver disorders, chronic appendicitis, etc. Fraudulent therapeutic claims.—[*N. J. 19368; November, 1932.*]

Uri-Tox.—John Wilbur, Daughter Co., Inc., Westerly, R. I. Composition: Iron (ferrous) carbonate, quinine, strychnine, and ginger. For blood and nerve disorders. Fraudulent therapeutic claims.—[*N. J. 19368; November, 1932.*]

San-Cura Ointment.—Thompson Medical Co., Titusville, Pa. Composition: Essentially a petrolatum base, with small amounts of carbolic acid and camphor. Falsely claimed to be antiseptic. Fraudulent therapeutic claims.—[*N. J. 19370; November, 1932.*]

Buhler Oil.—Gelschaft Laboratories, New York. Composition: Volatile oils (about 77 per cent), including turpentine, menthol and camphor, and a fatty oil (about 23 per cent). For rheumatism, gout, lumbago, etc. Fraudulent therapeutic claims.—[*N. J. 19469; December, 1932.*]

Mike Martin's Liniment.—Vasco Products, Inc., Brentwood, Md. Composition: Essentially volatile oils (11 per cent), including methyl salicylate and oleoresin of red pepper, incorporated in a fatty oil. Fraudulent therapeutic claims.—[*N. J. 19376; November, 1932.*]

Dead Shot.—Dead Shot Co., Marian, Ark. Composition: Essentially sulphur (7.4 per cent), volatile oils (28 per cent) including turpentine oil, methyl salicylate and camphor, carbolic acid (0.5 per cent), ammoni-

ated mercury (6.3 per cent), arsenic trioxide (0.014 per cent), petrolatum (vaseline) and wax. For eczema, erysipelas, old sores, etc. Fraudulent therapeutic claims.—[*N. J. 19382; November, 1932.*]

Vege-Lene Stomach and Liver Pills.—Vege-Lene Co., Warsaw, N. Y. Composition: Extracts of plant drugs, including aloe, podophyllum and nux vomica. Fraudulent therapeutic claims.—[*N. J. 19383; November, 1932.*]

Vigorex Tablets.—J. A. Roldan Co., St. Louis. Composition: Tablets for men contained chromium sulphate, a calcium compound, phosphates, small amounts of an iron compound and glandular material, a trace of strychnine, sugar and starch; tablets for women contained all these ingredients except the glandular material and, in addition, a zinc compound, a fixed oil and carbonate of lime. Vigorex Tablets for Men sold for sexual debility, nervousness, etc.; Vigorex Tablets for Women sold for neurasthenia, menopause disturbance, sterility, etc. Fraudulent therapeutic claims.—[*N. J. 19389; November, 1932.*]

Planters Cuban Oil.—Planter Medicine Co., Baltimore. Composition: Essentially kerosene, chloroform and volatile oils, including methyl salicylate, camphor, sassafras and citronella, colored red. For rheumatism, neuralgia, sore throat, etc. Fraudulent therapeutic claims.—[*N. J. 19391; November, 1932.*]

Allen's Rheumatic Treatment.—Hart M. Allen Laboratories, Los Angeles. Composition: White tablets, each containing acetanilid (5 grains), caffeine and baking soda; blue tablets each containing 7.2 grains of aspirin. Fraudulent therapeutic claims.—[*N. J. 19396; November, 1932.*]

Mantone.—Wachsellan Mantone Medicine Co., Inc., Baltimore. Composition: Sugar, aloes, sodium salicylate, caramel and water. "General system tonic." Fraudulent therapeutic claims.—[*N. J. 19458; December, 1932.*]

Blair's Female Tablets.—Becker Chemical Co., Cincinnati. Composition: Plant drugs, including a bitter drug. Fraudulent therapeutic claims.—[*N. J. 19459; December, 1932.*]

Blair's Ton-Ko-No Herbs.—Becker Chemical Co., Cincinnati. Composition: A mixture of ground plant drugs, including licorice and laxative drugs. For stomach, kidney and liver disorders, rheumatism, etc. Fraudulent therapeutic claims.—[*N. J. 19459; December, 1932.*]

Greenhalgh Wash.—Greenhalgh Remedy Co., Salt Lake City, Utah. Composition: Essentially small amounts of compounds of magnesium, iron and aluminum, sulphates, borates, phosphates nitrates, sulphur, plant tissue and extracts of plant drugs, with sugar, glycerine and water. For eczema, cancers, female weakness, etc. Fraudulent therapeutic claims.—[*N. J. 19463, December, 1932.*]

Greenhalgh Naturello.—Greenhalgh Remedy Co., Salt Lake City, Utah. Composition: Essentially a clay-like material, containing magnesium and aluminum compounds, silicates and carbonates, and a trace of an iron compound. For rheumatism, stomach disorders, cancer, etc. Fraudulent therapeutic claims.—[*N. J. 19463; December, 1932.*]

Greenhalgh Locus Oil.—Greenhalgh Remedy Co., Salt Lake City, Utah. Composition: Essentially a fatty oil, with small quantities of spearmint oil and methyl salicylate. For goiter, rheumatism and lung trouble. Fraudulent therapeutic claims.—[*N. J. 19463; December, 1932.*]

Greenhalgh Liniment.—Greenhalgh Remedy Co., Salt Lake City, Utah. Composition: Essentially ammonia, extracts of plant drugs and small quantities of volatile oils, with glycerine and water. Fraudulent therapeutic claims.—[*N. J. 19463; December, 1932.*]

Greenhalgh Cancer Powder.—Greenhalgh Remedy Co., Salt Lake City, Utah. Composition: Essentially nitrates, sulphates, borates, sulphur and salt, with traces of magnesium and iron compounds, rosin and sugar. Fraudulent therapeutic claims.—[*N. J. 19463; December, 1932.*]

Greenhalgh Canker Syrup.—Greenhalgh Remedy Co., Salt Lake City, Utah. Composition: Essentially acetic acid, borates, sulphates, nitrates, traces of magnesium and iron compounds, sulphur, extracts of plant drugs, sugar and water. Fraudulent therapeutic claims.—[*N. J. 19463; December, 1932.*]

Mountain Rush Blood Purifier (Greenhalgh).—Greenhalgh Remedy Co., Salt Lake City, Utah. Composition: The herb *Ephedra viridis*. Fraudulent therapeutic claims.—[*N. J. 19463; December, 1932.*]

Greenhalgh Blood Purifier.—Greenhalgh Remedy Co., Salt Lake City, Utah. Composition: Essentially small amounts of compounds of magnesium and aluminum, borates, sulphates and phosphates, traces of sulphur and chloride, with extracts of plant drugs, sugar and water. Fraudulent therapeutic claims.—[*N. J. 19463; December, 1932.*]

Greenhalgh Cough Syrup.—Greenhalgh Remedy Co., Salt Lake City, Utah. Composition: Essentially magnesium and iron compounds, sulphates, phosphates, borates, sulphur, acetic acid, extracts of plant drugs, sugar, a trace of alcohol, and water. Fraudulent therapeutic claims.—[*N. J. 19463; December, 1932.*]

Greenhalgh Kidney Powder.—Greenhalgh Remedy Co., Salt Lake City, Utah. Composition: Essentially nitrates, sulphates, borates, sulphur, traces of magnesium and iron compounds, with rosin and sugar. Fraudulent therapeutic claims.—[*N. J. 19463; December, 1932.*]

Vernon's Anti-Flu.—J. W. Vernon, Pasadena, Calif. Composition: Petrolatum with volatile oils, such as eucalyptus and camphor. Fraudulent therapeutic claims.—[*N. J. 19465; December, 1932.*]

Viavi.—Viavi Co., San Francisco. Composition: (Liquid) essentially glycerine, extracts of plant drugs including golden seal and water; (berate) ointment containing tannin, berberine and a trace of golden seal in a base of cocoa butter and a petroleum product. For catarrnal and inflammatory conditions of nose, throat, stomach, kidneys, etc. Fraudulent therapeutic claims.—[*N. J. 19466; December, 1932.*]

Correspondence

MORE UNFAIR ADVERTISING BY HARROWER

To the Editor:—In a recent publication of the Harrower Company, an article appeared captioned "Harrower and Engelbach." This takes unfair advantage of the late Dr. William Engelbach. He not only would have resented but also clearly and definitely refuted any such association. I feel that my duty is to repudiate this form of advertising, and in so doing I am but voicing the resentment of his numerous medical friends, former students and associates.

A major portion of Dr. Engelbach's life was devoted to teaching the general profession sound diagnostic and therapeutic endocrine medicine, in opposition to the illogical claims of hyperenthusiastic physicians and unscrupulous pharmaceutic houses. His medical prestige was self earned. He was never in accordance with this man's theories nor could he condone his methods of advertising to the profession.

ROBERT L. SCHAEFER, M.D., Detroit.
1304 Kresge Building.

"A NEW SIGN OF PERICARDIAL EFFUSION"

To the Editor:—In THE JOURNAL, May 27, in an article entitled "A New Sign of Pericardial Effusion," Eli Moschcowitz describes the "abrupt transition from pulmonary resonance to cardiac flatness" in such conditions, stating that this sign, "so far as I can gather, has not been described before." Having often heard this sign described in courses on physical diagnosis and seen it demonstrated at the bedside, I was somewhat surprised to see it again mentioned, especially as a new sign, and, above all, in THE JOURNAL. A very casual review of some of the textbooks and monographs on heart disease published during the past forty years confirmed the opinion that it is a well known and frequently described physical finding, although Cabot's and Norris and Lander's books on physical diagnosis do not mention it and it is not spoken of in the articles on pericarditis in Cecil's or Osler's textbooks. A. E. Sansom (The Diagnosis of Diseases of the Heart and Aorta, 1892, p. 157) stresses it, saying that with pericardial effusion "relative cardiac dulness does not exist; the transition from the resonance of the lung to a very marked dulness is abrupt." In Allbutt's System (**6**:763, 1898) the sign is described by F. T. Roberts, who speaks of Dr. Sansom's "stress of it," and Babcock (Diseases of the Heart and Arterial System, 1903, p. 78) again speaks of it, stating that Bauer and Sansom both attach great importance to the "abruptness of the transition." In a small outline on physical diagnosis, W. K. Draper and V. H. Norris (Notes on Physical Diagnosis, 1899, p. 61) in speaking of pericarditis with effusion, state that "if the amount of fluid is small the area of cardiac dulness is not increased but there is an abrupt change from normal pulmonary resonance to flatness." Again, in Osler's System (**4**:52, 1915) McPhedran speaks of it in his article on diseases of the pericardium. No doubt a more careful review would yield still more references to this often mentioned sign. None of the articles quoted give references antedating Sansom.

THEODORE B. RUSSELL, M.D.,
Bellevue Hospital, New York.

[NOTE.—The letter was referred to Dr. Moschcowitz, who replied:]

To the Editor:—I am not surprised that the sign of pericardial effusion, which I described, had been previously observed, because it is apparently so obvious; but I confess that the references mentioned had escaped me. My readings, I admit, were largely devoted to the most modern of textbooks on

physical diagnosis and on diseases of the heart. These, singularly enough, are silent with respect to the sign. At all events, it is apparently not widely known, as evidenced by the fact that it appeared novel to every one to whom I had demonstrated the sign for the past few years in various hospital wards. I am deeply grateful for having my attention called to these references.

ELI MOSCHCOWITZ, M.D., New York.

THE FORM OF THE FECES

To the Editor:—I have read with interest the reports of Cowgill and his co-workers on their studies of the laxative action of bran. One, on the form of the stool as a criterion of laxation, which appeared in the issue of THE JOURNAL for July 22, contains statements and conclusions that are somewhat misleading, and thus the sale of bran rather than health may be promoted.

One statement, "Our observations support the more general view . . . that food residues require from about sixteen to twenty-four hours to traverse the alimentary tract" was based on the "interval between defecations" and is therefore irrelevant to determine the absorption. Again, the statement "we became impressed with . . . purely subjective criteria of laxation; namely (*a*) the ease with which defecation takes place, and (*b*) the presence or absence of a sense of complete emptying" appears misleading. If such criteria have a meaning, the semifluid feces of diarrhea, which are sometimes too easy to pass and give a most complete sense of emptying, are more normal than the sausage-shaped stool. The conclusion that "the fecal unit type of Burnett be regarded as one extreme indicative of constipation" appears erroneous. If such a conclusion is correct, the "fecal unit type" of the rat, guinea-pig, rabbit, sheep, deer and horse must also be regarded as one extreme indicative of constipation in these animals; and as this type of human feces is frequently dejected twice during the day (Burnett, F. L.: Faulty Food Factors and Atonic Constipation, THE JOURNAL, Sept. 27, 1924, p. 996) and constipation means infrequent defecation, the conclusion is erroneous. As constipation is frequently relieved by the regulation of the normal food and habits of a patient, as shown by Thaysen (*Ugesk. f. læger.* **81**:4 [Jan. 2], 37 [Jan. 9], 91 [Jan. 16] 1919) and also in my article just cited, the use of bran or even yeast is unnecessary.

To those uneducated in the complex and delicate adjustments of the human body in health or in disease, impressions of "the ease of evacuation" and "a sense of complete emptying of the bowel" may be proper criteria to determine the normal form of the human feces. To others who have a sound and scientific point of view, data deduced from comparative physiology, human colonic functions, and the relation of the form of the feces to health and disease are essential for this purpose. Then, as "the fundamental process of nutrition is the sum of the processes by which an animal . . . absorbs, takes in, and utilizes food substances" (Webster's New International Dictionary, Springfield, Mass., G. & C. Merriam Company), the nutrient substances that pass through the wall of the intestine and into the body—or the absorption—are the chief consideration for the normal development and maintenance of the tissues. The difficulties of absorption have recently been described by Minot (*New England J. Med.* **208**:1285 [June 22] 1933). He writes: "The physician caring for patients with arthritis . . . should be acquainted with . . . work on anabolic nutrition and intestinal functions. Little is known concerning the difficulties of absorption and utilization of food products from the digestive tract and regarding what particular food factors may improve gastro-intestinal function. . . . It is probable that significant degrees of such disturbances may arise in arthritis and be overcome by well chosen diets."

FRANCIS L. BURNETT, M.D., Boston.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TENNIS ELBOW

To the Editor:—Would you kindly outline in detail the most recent and generally accepted therapy for the condition known under the various headings as "tennis elbow," "radiohumeral bursitis" and "epicondylitis of the humerus"? The type of disability to which I refer is generally regarded as a result of trauma from such activities as tennis, golf, lifting or any occupation that involves an unusual stress and strain on the parts involved. I am not presuming to have you include in your reply any joint involvements that may have their origin in various foci of infection or from a disturbance of metabolic activities. Please omit name.

M.D., Oregon.

ANSWER.—Because the exact pathologic changes of the clinical syndrome known as "tennis elbow" have not been described, there is no specific or universally accepted treatment for this condition. Numerous suggestions, however, have been made, any one or combination of which may give relief. Among these are:

1. Rest. This may be accomplished by the application of a cock up splint in order to relax the muscles attached to the external condyle. (Hansson, K. G., and Horwich, I. D.: Epicondylitis Humeri, THE JOURNAL, May 17, 1930, p. 1557). The elbow may be included to obtain more rest and greater relaxation.
2. Physical therapy in the form of dry heat, diathermy and gentle massage.
3. Roentgen therapy.
4. Infiltration of the tender tissues with procaine hydrochloride in saline solution.
5. Manipulation. G. P. Mills (Treatment of Tennis Elbow, *Brit. M. J.* **1**:12 [Jan. 7] 1928) advises sudden hyperextension of the forearm while it is in pronation and while the fingers and wrist are flexed, with the patient under a general anesthetic. At the same time pressure is applied over the epicondyle. Relief, he claims, is immediate. The arm is useful, though tender for a while.
6. Firm digital pressure over the radiohumeral bursa, in order to rupture it, is recommended by Louis Carp (Tennis Elbow [Epicondylitis] Caused by Radiohumeral Bursitis, *Arch. Surg.* **24**:905 [June] 1932). There is immediate alleviation of symptoms and almost complete disappearance of signs in the cases he reports.
7. Operative therapy. This is not recommended unless conservative treatment fails to relieve prolonged or recurrent pain and disability. When decided on, the procedure may be either: (*a*) excision of the subcutaneous fat, fascia and periosteum of the epicondyle, or (*b*) excision of the radiohumeral bursa, which, when present, lies beneath the conjoined tendon just below the epicondyle and over the radiohumeral joint. Normally it is 1 by 0.5 cm., with thin friable walls, and contains a little clear fluid. Occasionally it is calcified and may generally be demonstrated on roentgen examination.

ALLERGIC REACTION TO HONEY

To the Editor:—Recently I have seen two patients who were acutely ill from eating honey. I find no mention of such a condition in my textbooks, but I find that it is fairly common in some of the local doctors' experience. Please give me all the information you have on this subject. The symptoms of which the patients complain are nausea, vomiting, weakness, generalized numbness and impaired vision. The two that I saw appeared acutely ill, were shocked, were covered with cold perspiration, and had extremely weak, slow pulse. Our people believe that there are two causes for the bad effects: first, that the bees obtain honey from the flowers of mountain ivy or laurel; second, to the fact that the honey is new. Onset usually takes place about two hours after the ingestion of the honey.

JAMES H. MCNEILL, M.D., North Wilkesboro, N. C.

ANSWER.—The symptoms suffered by these two patients were due to severe allergy from honey. Allergists recognize this tendency of honey to produce marked sensitization reactions and many reports of such disturbances have appeared in the literature. Thus, Xenophon described severe headaches from honey. Hutchinson in his book "The Pedigree of Disease" published in 1884 noted idiosyncrasies to honey. Duke more recently reported two cases of severe abdominal symptoms similar to those observed by the questioning physician. One of his patients at the age of 27 ate an entire cake of honey, after which the slightest bit always produced severe abdominal pain. In 1930, Freeman reported unconsciousness for seven minutes

due to honey. Smith in 1909 stated that his buckwheat-sensitive patient could not tolerate honey from bees that fed on buckwheat blossoms but could take other types of honey. Walker in 1917 reported asthma arising from the ingestion of clover honey, and Menaugh in 1928 studied a patient whose urticaria was due to this food. Three patients with severe allergic symptoms and several others with milder disturbances have been studied by Rowe, as reported in his book "Food Allergy." Makai, as stated by Coca, Walzer and Thommen in their book on "Asthma and Hay Fever," found that many children who had received injections of horse serum over a period of four months and who were fed honey developed severe respiratory and gastro-intestinal symptoms from it, whereas untreated children tolerated honey without difficulty. No explanation of this observation was offered.

The allergic reactions may arise from specific hypersensitiveness to the pollens of the flowers from which the honey is obtained, as suggested by the reports noted and by the experience of many physicians as indicated in the question. It is probable that a specific allergy is also present in many patients to some protein of the bee itself which is secreted in honey and that the type of the resulting symptoms depends on the degree and the location of the sensitized tissue cells. The article by Benson and Semenov on "Allergy in Its Relation to Bee Sting" (*J. Allergy* **1**:105 [Jan.] 1930) is of interest and indicates that allergy to the intrinsic bee protein is probably responsible for such reactions.

WASSERMANN FAST SYPHILIS

To the Editor:—I have been treating a patient with syphilis for two years. The presence of the infection was detected inadvertently during a complete examination in which some blood was sent to the laboratory. The patient had gonorrhea and a chancre in 1920. He had had at that time a course of eight injections in the arm which probably were arsphenamine but which made him sick. He also had a few pills by mouth. He did not have further treatment or blood test since and considered himself cured. His initial visit was with regard to a sacro-iliac strain. The first positive blood Wassermann reaction on his initial visit was Oct. 15, 1931. He was immediately started on iodides by mouth and sodium bismuth thioglycollate, 3 grains (0.2 Gm.), intramuscularly, of which he had ten treatments at intervals of four days. Then followed nine treatments of mercurosal, 1½ grains (0.1 Gm.), at the same interval; then eight treatments of neoarsphenamine, 0.6 Gm. Then the patient had six more of mercury as before but this time with poor tolerance, so he finished this course with four treatments of a bismuth compound. Immediately following this he had again neoarsphenamine, receiving five treatments at weekly intervals as before. The blood Wassermann reaction, June 18, 1932, approximately six months after the beginning of treatment, was still strongly four plus. June 21, the patient had another series of neoarsphenamine, ten treatments this time, and, September 16, the blood was still strongly four plus. From September 26 to November 28, the patient had ten more neoarsphenamine treatments. He was then thought to have had enough arsenic and was placed on mercurial rubs, of which he accurately did thirty-four. Unfortunately, he obtained the mild mercurial ointment instead of the stronger and so did not obtain as much mercury as was hoped. The blood Wassermann reaction, Jan. 24, 1933, was still strongly positive, four plus. From February to April of this year the patient has had eight neoarsphenamine treatments of 0.6 Gm. each and a test on the 18th of April was still positive. I am afraid of the dangers of causing an aplastic anemia with any more arsenic. The patient, curiously, has developed heavy colds with the course of arsenic. He looks well and has no external evidence of syphilis, and, while the spinal fluid has never been checked, there is no evidence whatever of central nervous system involvement. His wife had a one plus blood, which promptly cleared under mild active treatment and has been checked many times since and is still negative. Is this a Wassermann fast case, which it apparently seems to be? What further type of treatment would you suggest? What reassurance can be given to the patient as far as ever curing him? Has the case been overtreated? Please omit name and town.

M.D., Michigan.

ANSWER.—One is not justified in stating that this patient is Wassermann fast until a critical examination has been made of the heart and the spinal fluid. Active neurosyphilis frequently remains asymptomatic and shows no clinical evidence of its presence for many months or years after the onset of a syphilitic infection, and consequently it is quite unwise to assume that the absence of physical signs excludes this possibility from further consideration. A spinal fluid examination that includes cell count, globulin, colloidal gold and a quantitative Wassermann test is certainly indispensable for the interpretation of a case of this sort.

As far as the heart is concerned, the patient should be seen by a competent cardiologist whose examination will include an electrocardiogram and an orthodiagram.

While at first sight it would appear that the patient has had a rather large amount of treatment, it has leaned rather heavily on the side of the arsphenamines and he has had comparatively little of the resistance-building properties of bismuth. Granting that the cardiovascular examination and the spinal fluid report are negative, it would seem imperative to continue a rather intensive course of twenty or thirty injections of an oil-soluble bismuth compound. One might also consider the advisability of using from twenty to forty injections of bismuth arsphenamine sulphonate or the administration of colloidal mercuric sulphide. The patient has certainly not been overtreated, but his treatment has been poorly directed, as he has had little concurrent use of an arsenical and a heavy metal. Cure in syphilis is always presumptive, never certain, and it is much safer merely to tell the patient that by continuance of treatment in association with proper investigation of the cardiovascular and nervous systems he may probably expect arrest and an asymptomatic future.

ALLERGY TO PYRETHRUM

To the Editor:—A woman, aged 26, began to have a profuse nasal discharge during July of last year, accompanied by a blocking of the nasal passages so that she had to breathe through the mouth. Ephedrine sprays gave only partial and temporary relief. One nose and throat specialist advised an operation. Another competent rhinologist diagnosed the case as one of allergic rhinitis and advised skin tests to determine the specific sensitivity. The skin tests showed a marked sensitivity to pyrethrum and very mild reactions to several fish proteins, cedarwood, boxwood, orris root, and bacteria found in the upper respiratory tract. In November, 1932, the patient was started on a full course of subcutaneous injections of pyrethrum extract as prepared by the Arlington Chemical Company. Toward the end of a series of seventeen injections considerable relief was obtained from all nasal symptoms, the patient being once more able to breathe through the nose and to smell and taste her food. The last dose given was 0.5 cc. of a 1:100 dilution. At the end of the series of injections the patient herself stated that she was 95 per cent improved. A month elapsed, when the patient had a return of the profuse watery nasal discharge, sneezing, and blockage of the nasal passages. Two injections of the same solution relieved her again. Another symptom-free month passed and once more the same symptoms returned. This time a series of ten injections, gradually working up to 0.5 cc. of a 1:100 dilution, had to be given before relief was obtained. The patient was told that she would probably have to have one injection a month to keep her symptom free. For a period of six weeks she was again symptom free, when against her physician's advice she smoked some cigarets, the tobacco of which she was warned contained some pyrethrum. Now her nasal symptoms are almost as bad as they were before the specific therapy was started. She is frequently exposed to tobacco smoke and it makes her feel uncomfortable and usually causes her to sneeze and her nose to clog up. This is especially true if cigars are being smoked. She now avoids smoking herself and also avoids the other substances to which she was shown to be slightly sensitive. Her previous history and family history are negative, except that one brother has attacks of asthma, which were proved to be due to sensitivity to dog hair. There never were any pulmonary or ocular signs or symptoms. I should like to know how often one should repeat the pyrethrum injections. Is 0.5 cc. of a 1:100 dilution a sufficiently large maximum dose? In your opinion would a series of injections of an autogenous vaccine made from bacteria found in the upper respiratory tract be of value? Is there any other treatment you would recommend? Please omit name.

M.D., New York.

ANSWER.—Hypersensitiveness or allergy to pyrethrum is not uncommon and there are several reports in the literature:

Garratt, J. R., and Bigger, J. W.: Asthma Due to Insect Powder, Brit. M. J. **2**:764 (Oct. 27) 1923.

Ramirez, M. A.: Pyrethrum, Etiologic Factor in Vasomotor Rhinitis and Asthma, *J. Allergy* **1**:149 (Jan.) 1930.

McCord, C. P.; Kilker, C. H., and Minister, Dorothy K.: Pyrethrum Dermatitis, THE JOURNAL, Aug. 6, 1921, p. 448.

Vaughan, W. T.: Food Allergy in Specialties and in General Medicine, *J. Lab. & Clin. Med.* **15**:726 (May) 1930.

Piness, George, in discussion on Vaughan, W. T.: The Effect of Allergic Reactions on the Course of Nonallergic Diseases, *J. Allergy* **1**:188 (Jan.) 1930.

Pyrethrum has been the cause of attacks of bronchial asthma and vasomotor rhinitis, and many cases of dermatitis have occurred in persons who have handled this material in industrial work.

Pyrethrum is a plant belonging to the family Compositae and is a section of the genus Chrysanthemum. It grows largely in Asia but is also cultivated in southern France and in California. The dried flower of the plant is finely pulverized and contains strongly insecticidal principles. This property is its chief reason for industrial use. Pyrethrum is a constituent of most insect powders and many fly repellant solutions; it is in wide use for spraying on plants, for eliminating household pests, such as roaches, and to kill moths and mosquitoes. Contact, therefore, can come to those who manufacture the insecticide, to gardeners who are near the flower, to those who use the insect powder or liquid, and to those who visit theaters and other places where spraying has been carried out. Complete avoidance, then, of all chrysanthemums and their products is essential. No form of tobacco contains pyrethrum; in the query, symptoms were attributed to pyrethrum in tobacco. It is true, however, that tobacco, as well as many other substances, is frequently mixed with pyrethrum in making insecticides.

Desensitization, in view of the success heretofore, would seem to be indicated, and it would be well to repeat the final dose of 0.5 cc. of 1:100 pyrethrum extract every two weeks for

about a year. An autogenous respirating vaccine might help, but its good results, if any, would be nonspecific, in all probability, and hence would be only temporary.

In this case one other factor should not be neglected. It is stated that there was a slight positive test for orris root. This is the main ingredient of many cosmetics, face powder, talcum powder and perfumes. It would be well to retest for orris root, both cutaneously and intracutaneously, and, if positive, to desensitize against orris root as well as pyrethrum; at the same time, absolute avoidance of orris-containing cosmetics is essential. Orris-free cosmetics are on the market and are advertised in medical journals, especially the *Journal of Allergy*.

ALTITUDE AND ALLERGY

To the Editor:—Will you please advise me whether high altitude (and of what minimum height) is of alleviative value in the treatment of allergic vernal catarrh. Have the White Mountains any superior therapeutic value over the Adirondacks? Are there any specific localities in these mountain chains better than others? Any reference on the subject of climate in this condition will be appreciated. Please omit name and address.

M.D., New Jersey.

ANSWER.—The question implies that the vernal conjunctivitis has been diagnosed as allergic; but, since the specific allergic factor in the case is not mentioned, it is rather difficult to answer the question satisfactorily. The present status of the etiology of vernal conjunctivitis is not definitely settled. There have been a number of reports which tend to show that the condition may be allergic, at least in some cases (Fort, A. G.: Vernal Conjunctivitis: Some New Observations on Treatment, *J. M. A. Georgia* **12**:101 [March] 1923. Woods, A. C.: The Application of Immunology to Ophthalmology, *Arch. Ophth.* **53**:321 [July] 1924. Lehrfeld, Louis: Observations on Eighty-Seven Cases of Vernal Conjunctivitis at the Wills Hospital [1929-1931], *Arch. Ophth.* **8**:380 [Sept.] 1932). Pollen has been most frequently suspected. Also foods and various inhalant allergens have been incriminated. The older ideas of photosensitivity and possible other causes cannot be entirely disregarded. The difficulties with the explanation of this disease on the basis of pollen allergy are the absence of a hereditary tendency, the onset of symptoms in February or March before pollen is present in the air, the absent or slight reactions to pollens by skin test, and the rather indifferent response to pollen avoidance or therapy.

If it has not already been done it would be advisable to conduct an allergic investigation in the case cited. Cutaneous tests should be made with the common and prevalent air-borne pollens, foods and inhalants. If these are negative, conjunctival tests should be made, particularly with the pollens. This is done by placing a tiny speck of the dry pollen on the conjunctival mucosa. A positive response will consist of itching, watering, injection and edema of the mucosa. If the cause can be determined, treatment should be begun as in hay fever. If it is a food it may be possible to avoid it.

If pollen is found to be the cause, or if no cause is found, it is possible that a residence at high altitudes may relieve the condition. Axenfeld refers to that likelihood. Ernst Fuchs (Textbook of Ophthalmology, ed. 5, Philadelphia, J. B. Lippincott Company, 1917) names a residence in the mountains as one of the methods of treatment. Data are not present which would indicate the superiority of one mountain chain over another. The higher elevations, being comparatively free from vegetation, are probably the most favorable.

ANGIONEUROTIC EDEMA

To the Editor:—A woman, aged 42, with irrelevant past personal history, whose mother had asthma and whose sister was sensitive to horsehair, had attacks of angioneurotic edema while in Florida fourteen months before. The attacks occurred every twenty-eight days, lasted four or five days, and covered the entire face, neck, arms and legs. The menopause began in 1927 and she continues to have severe hot flashes between attacks, which disappear when allergic manifestations are shown. She has been tested for proteins, foods, bacteria and various animals, and is negative to all. Physical examination is negative and gynecologically she is negative. Is it possible that this allergy is due to ovarian hormones or to the menopause? Treatment with calcium lactate and ephedrine sulphate was without value. I cannot find reference in literature to an angioneurotic edema of menopausal or endocrine origin. Please suggest a line of treatment and any possible tests of hormones for sensitivity. Edema is so intense that I am afraid the patient will die from laryngeal obstruction. Do not mention name, please.

M.D., Pennsylvania.

ANSWER.—Although angioneurotic edema need not necessarily be allergic, it frequently is of the latter type. In this particular case, because of the definite history of allergic manifestations in the family, an allergic cause may be suspected. It is recognized that menstruation or the menopause may be the precipitating factor of attacks of urticaria, asthma and similar manifestations, while the more basic cause may be a sensitization to food or an inhalant. Allergy to ovarian hormones, while not impossible, is less likely.

If complete tests for food and other materials have been made, the following suggestions are offered:

1. The patient should be placed on an elimination diet with a view of determining sensitization to foods that do not react on skin tests. The diet chosen should contain only a few foods and those which do not frequently cause allergy. Such foods as apricots, pineapple, prune, spinach, lettuce, beef, lamb, rice and olive may form the diet for the first few days. If the patient improves on such a diet, new food may be added every three or four days.

2. If no response is obtained from dietary measures, treatment with ovarian hormone may be indicated.

3. For more temporary measures from 4 to 8 units of parathyroid extract subcutaneously, every two days, may be useful. In some cases one-half drachm (2 cc.) doses of dilute hydrochloric acid in one or one and one-half glasses of water taken with meals may be of value.

4. In the event of failure to obtain results from these methods, recourse may be had to the use of nonspecific measures, such as autohemotherapy or peptone orally or subcutaneously. At times, results may be obtained by these methods when more specific treatment fails.

STRONTIUM BROMIDE IN DERMATITIS VENENATA

To the Editor:—Please advise me as to the efficacy of strontium bromide solutions given as injections in the treatment of dermatitis venenata. I will appreciate any advice as to the most effective treatment of that condition. Please omit name.

M.D., Texas.

ANSWER.—The treatment of dermatitis venenata is dependent largely on the irritant responsible. The oily irritant of poison ivy, for instance, can be removed with soap and hot water, which in an alkali dermatitis would be contraindicated. The range of irritants is nearly as wide as the list of substances with which man comes in contact. For most cases, avoidance of contact and the use of calamine lotion (prepared calamine, 8 parts, and zinc oxide, 8 parts, in solution of calcium hydroxide, 120 parts) is sufficient. To this phenol and glycerin, of each, 0.6, or menthol, 0.6 or 1.2, may be added, or in nonvesicular cases half rose water may be used as a vehicle, or more glycerin may be used. Other forms of dermatitis venenata, as that caused by sulphur, demand ointments.

Only in severe cases, or in nervous individuals, is internal medication necessary. In such cases sedatives are useful and because they are least liable to increase itching or cause complicating eruptions, bromides are the most useful. Strontium bromide is no more effective than the sodium salt, which is the only other one given intravenously. Limitation of sodium chloride intake is an aid to the action of the bromides.

DIAGNOSIS OF ROCKY MOUNTAIN SPOTTED FEVER

To the Editor:—In this county there have been three or four cases diagnosed as Rocky Mountain spotted fever. In two of the cases the county health officer claimed that the diagnosis was confirmed by laboratory methods. The cases have been handled by different physicians and in the case of the second appearance the attending physicians, following the information that the first cases were confirmed by laboratory methods, sent the blood to the laboratory to which the first specimens were sent. The laboratory sent back to the second group of physicians a report of agglutination in certain dilutions for the "Weil-Felix" reaction. In his "Bedside Diagnosis," Blumer states that there is no satisfactory laboratory diagnosis (p. 274). The Weil-Felix test is generally considered diagnostic in typhus fever. Has this test been used in the diagnosis of Rocky Mountain spotted fever? By returning reports on these cases, the laboratory in question leaves the impression that this is the case. Is it possible that the laboratory is sending back reports of the Weil-Felix reaction in order to be used in differential diagnosis without so stating? Please omit name.

M.D., North Carolina.

ANSWER.—The Weil-Felix test, that is, the agglutination of Bacillus proteus X, has been found to be positive with serums from cases of either typhus or Rocky Mountain spotted fever. There is some variation in the reaction of typhus serums and Rocky Mountain spotted fever serums with different strains of B. proteus X. This variation has not been fully investigated as yet. With the strains of B. proteus X usually employed in diagnostic laboratories in this country, no differentiation between typhus and spotted fever can be made. The exact differentiation between typhus and spotted fever in the laboratory requires a rather prolonged study in animals of the nature of the virus recovered from the patient's blood. This study should include: (1) the clinical picture produced by the virus in guinea-pigs; (2) the production of agglutinins for B. proteus X_{19} in rabbits or monkeys; (3) histologic lesions produced

in the tissues of animals, and (4) cross immunity tests with known strains of typhus and spotted fever. Protection tests to determine the ability of convalescent serum to protect animals against infection with spotted fever are of value.

VITILIGO

To the Editor:—I have a patient, a girl, aged 18, single, of medium build, weighing 118 pounds (53.5 Kg.), who had whooping cough at the age of 7, measles at the age of 6 and who is otherwise healthy. About three years ago she noticed a place on the right anterior surface of the throat turning white; the skin became depigmented to the extent of 3 inches in length and half an inch wide. During the last year this area has increased in size, radiating up the side of the neck toward the mastoid prominence. There is now a perceptible bulging of the skin over the depigmented area. To the touch it feels like a fatty tumor but perhaps somewhat harder and is more or less fixed to the superficial structures but not deeply fixed. Can you tell me what to do for this condition? I am at a loss to know what it is called. I might add that there is no breaking down of the integument so far, and no pain or itching. Please omit name.

M.D., West Virginia.

ANSWER.—The increasing loss of pigment described corresponds to the condition known as vitiligo. This is nearly always acquired. The white spots begin as single or multiple defects which tend to coalesce. Sometimes they present a regular convex border and sometimes the margin may be irregular. The etiology is not known. Disturbances in the glands of internal secretion, arteriosclerosis and nervous disturbances have been observed as associated conditions in these cases. In the course of time these depigmented areas may increase in size and number, though, on the other hand, they may tend to disappear or to remain stationary. The query states that there is a perceptible bulging of the skin over the depigmented area and that the region is somewhat harder. One may assume that this bulging may be produced by atrophy and thinning of the integument, diminishing the elasticity, which may occur during the course of vitiligo.

The only treatment consists in attempting to change the color of the skin, which may be attempted with the use of a quartz lamp; or the depigmented area may be colored with cosmetics.

WHISKY AND CATARACT

To the Editor:—A man, aged about 70, who has been a teetotaler all his life, has during the last year or so imbibed whisky at irregular intervals (sometimes going days, or even weeks, without touching any) for stimulation and to produce sleep. These sleep drafts have not been large but have been taken usually on an empty stomach after midnight. He is told by an ophthalmologist that he has swollen lenses and cataractous deposits, which made his left eye myopic to 6 diopters. There has been little change in that eye during the last year or two but the right eye is becoming rapidly myopic and has risen from 4 diopters to about 5½ in the last six or eight months. Could toxic amblyopia be a factor in this loss of vision, which has been so rapid in the right eye? At times it has seemed that after the man has taken one of these drinks the vision has been somewhat reduced the next day, but the myopia is increasing so rapidly that it is impossible to state that this is a fact. The whisky used has been the best that could be had through drug stores and by physician's special supply. Please omit name.

M.D., Louisiana.

ANSWER.—It is improbable that the whisky has played any part in the ocular condition. The development of cataract is usually associated with an increase in myopia of some 1 to 3 diopters. As cataract formation is practically always binocular, it is only fair to assume that the increase in the myopia in the right eye is due to the gradual formation of lens opacities. Much can be attributed to whisky, but not this.

IDIOSYNCRASY TO QUININE

To the Editor:—During the past year I have had two cases of subtertian malaria in which generalized urticaria and swelling of the face developed on the second day of quinine therapy. Neither showed any alarming signs other than the eruption. There was no dyspnea, deafness, photophobia, arrhythmia, delirium or albuminuria. Each patient was getting three doses of 0.6 Gm. of quinine daily. The dosage was decreased to 0.3 Gm. five times daily at four hour intervals. The eruption disappeared in the following twenty-four hours. During this time the temperature came down to normal and stayed down. Further convalescence was uneventful. Quinine was continued daily for six weeks. Is this eruption due to an idiosyncrasy to the quinine or is it from the malaria? Is it dangerous to persist with the quinine? Please omit name.

M.D., Virgin Islands.

ANSWER.—Although allergic symptoms have been described as a result of malarial infection, the present symptoms were probably the result of an idiosyncrasy to quinine. A discussion of this subject may be found in Stitt's "Diagnosis and Treatment of Tropical Diseases," 1922. To test quinine idiosyncrasy he advises a cutaneous test by scarifying the flexor surface of the arm with a 1 in 10 solution of quinine free from acid, controlled by a similar test with normal serum. In positive patients, marked erythema and edema occur in about five minutes. For desensitization he advises 0.006 Gm. of quinine combined with 0.3 Gm. of sodium bicarbonate, followed in about one and one-half hours with 0.06 Gm. of quinine with 0.3 Gm. of sodium bicarbonate. In general, when desensitization occurs it is not dangerous to proceed with quinine. Furthermore, when the symptoms are not alarming and as apparently occurred in the cases reported, desensitization or tolerance automatically occurs during therapy.

PROPHYLACTIC USE OF ARSPHENAMINE

To the Editor:—A patient was exposed several times to active secondary syphilis within the past four or five weeks before the syphilitic condition of the partner was diagnosed. At present there are no signs or symptoms of any infection, and the blood Wassermann reaction is negative. What would be your advice as to therapeutic measures for the exposed patient? Would you think it justifiable to administer a course of four or five intravenous injections of the proper dose of arsphenamine? Kindly omit name.

M.D., New York.

ANSWER.—A course of prophylactic injections of an arsphenamine, as suggested, is perfectly justifiable. It entails, however, a long period of careful clinical and serologic observation afterward, for there is no guaranty that, if infection has taken place, such a course will eradicate it entirely. The treatment will no doubt disturb the normal course of the disease, if it does not succeed in curing it; therefore the watch must be more careful and maintained for a much longer time than if the disease is left to develop normally.

Allowing the infection to develop may entail the necessity of a regular course of treatment for early syphilis; but if nothing develops the patient is freed from anxiety much sooner than under the first procedure.

HERPES SIMPLEX ON EXPOSURE TO SUN'S RAYS

To the Editor:—For two seasons I have been observing a young man who develops severe herpes over the external portions of his lips whenever he is exposed to the direct rays of the summer sun for more than an hour or so. This season, difficulties began following a baseball game recently. Last year's attacks followed exposure while fishing or swimming. Previous to last season he had no such attacks. He is in the twenties, is apparently quite well, and complains of no other sensitiveness of skin or mucous membranes. What would you suggest in the way of treatment or prevention? Please omit name.

M.D., New York.

ANSWER.—Herpes simplex, induced by exposure to the sun's rays, is not uncommon. It is difficult to carry out any treatment that will overcome sensitization. An ointment may be used, one that contains a slight coloring material, such as calamine, during the time that one is exposed. Ointment of rose water, hydrous wool fat or other greasy substances alone will probably be sufficiently protective. The following preparation might be of service: crude calamine, 4 Gm.; ointment of rose water, sufficient to make 30 Gm.; for external use.

PARATYPHOID INFECTIONS

To the Editor:—A fully developed case of paratyphoid appeared within twenty-four hours after the ingestion of a salmon sandwich. The attendant physician attributed the attack to the sandwich, stating that the incubation might have progressed in the sandwich. Regardless of the shelf life of sandwiches, could such an attribution be justified? Please omit name.

M.D., District of Columbia.

ANSWER.—Paratyphoid infections may develop suddenly, sometimes within a few hours after eating contaminated food. In the well known Derby outbreak in England, caused by pork pies, the period of incubation (thirty-seven patients) ranged from one and one-half to twenty-one hours. In some cases the illness was severe and lasted for three weeks. In the instance cited in the query it is of course impossible to assert, on the evidence presented, whether the sandwiches were or were not the cause of the illness. In such cases it is necessary to obtain full bacterial and epidemiologic data to justify any opinion.

"HYPERSECRETION DURING PREGNANCY"

To the Editor:—In THE JOURNAL, July 8, page 158, an inquirer asks for a method of treatment for excessive sweating, and except for general measures you have nothing specific to offer. In treating a case of asthenia secondary to a chronic bacteremia (for which I have been unable to find an underlying primary focus of infection), I have used with symptomatic improvement the recent extract of suprarenal cortex (Eschatin). This patient was much distressed with severe perspiration, frequently being drenched while resting quietly in bed; a dose of 1 cc. of the extract on alternate days has completely controlled this condition, in addition to giving some relief from the asthenia. Eschatin burns sharply when injected, but this can be entirely eliminated by adding 3 drops of 1 per cent procaine hydrochloride (without epinephrine) to the dose in the syringe, allowing the last drop to fill the needle.

J. M. NEIL, M.D., Oakland, Calif.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

ALASKA: Juneau, Sept. 5. Sec., Dr. Harry C. DeVighne, Juneau.

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Boston, Sept. 19. Sec., Dr. Wm. H. Wilder, 122 S. Michigan Ave., Chicago.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOGY: *Written.* Boston, Chicago, Cleveland, New York, Philadelphia, St. Louis and San Francisco, Oct. 28. *Oral.* New York, Dec. 15-16. Application must be filed before Sept. 1. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written (Group B Candidates).* The examinations will be held in various cities of the United States and Canada, Dec. 9. Application necessary before Nov. 1. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OTOLARYNGOLOGY: Boston, Sept. 16. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

COLORADO: Denver, Oct. 3. Sec., Dr. Wm. Whitridge Williams, 422 State Office Bldg., Denver.

CONNECTICUT: *Basic Science.* New Haven, Oct. 14. *Prerequisite to license examination.* Address State Board of Healing Arts, 1895 Yale Station, New Haven.

GEORGIA: Atlanta, Oct. 10. Joint Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

IDAHO: Boise, Oct. 3. Dir., Mr. F. L. Cruikshank, Boise.

IOWA: Des Moines, Sept. 12-14. Dir., Mr. H. W. Grefe, Capitol Bldg., Des Moines.

MICHIGAN: Lansing, Oct. 10-12. Sec., Dr. J. E. McIntyre, 202-3-4 Hollister Bldg., Lansing.

MINNESOTA: *Basic Science.* Minneapolis, Oct. 3-4. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis.

MONTANA: Helena, Oct. 3. Sec., Dr. S. A. Cooney, 7 W. 6th Ave., Helena.

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* The examinations will be held at centers where there are five or more candidates, Sept. 13-15. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

NEBRASKA: *Basic Science.* Lincoln, Oct. 3-4. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEW HAMPSHIRE: Concord, Sept. 14-15. Sec., Dr. Charles Duncan, State House, Concord.

NEW MEXICO: Santa Fe, Oct. 9-10. Sec., Dr. P. G. Cornish, Jr., 221 W. Central Ave., Albuquerque.

NEW YORK: Albany, Buffalo, New York and Syracuse, Sept. 25-28. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, Room 315 Education Bldg., Albany.

OKLAHOMA: Oklahoma City, Sept. 12-13. Sec., Dr. J. M. Byrum, Mammoth Bldg., Shawnee.

PUERTO RICO: San Juan, Sept. 5. Sec., Dr. O. Costa Mandry, Box 536, San Juan.

RHODE ISLAND: Providence, Oct. 5-6. Dir., Dr. Lester A. Round, 319 State Office Bldg., Providence.

TENNESSEE: Memphis, Sept. 29-30. Sec., Dr. H. W. Qualls, 130 Madison Ave., Memphis.

WISCONSIN: *Basic Science.* Madison, Sept. 23. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee.

Kansas June Report

Dr. C. H. Ewing, secretary, Kansas State Board of Medical Registration and Examination, reports the written examination held in Kansas City, June 20-21, 1933. The examination covered 10 subjects and included 70 questions. An average of 75 per cent was required to pass. Seventy candidates were examined, all of whom passed. Fifteen physicians were licensed by reciprocity with other states. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Loyola University School of Medicine		(1933)	86.4
Northwestern University Medical School		(1933)	87.1, 88.9
University of Kansas School of Medicine		(1929) (1933)	84.2, 82.1, 83, 83.2, 83.5, 83.8, 84.1, 84.5, 84.8, 85.1, 85.4, 85.4, 85.5, 85.5, 85.6, 85.6, 85.7, 85.8, 85.8, 85.8, 85.9, 86.1, 86.1, 86.3, 86.5, 86.7, 86.8, 87, 87.1, 87.3, 87.4, 87.5, 87.7, 87.7, 87.8, 87.8, 87.9, 88, 88.3, 88.8, 89.1, 89.2, 89.3, 89.3, 89.5, 89.9, 90, 90.1, 90.1, 90.6, 90.8, 91.5
Harvard University Medical School		(1931)	88
St. Louis University School of Medicine		(1932)	86.9
Washington University School of Med		(1931) 86.1, (1933)	89.6
Creighton University School of Medicine		(1933)	85.2, 86.2, 87.6
University of Nebraska College of Medicine		(1931) (1932) 88.3, (1933) 85.5	88.3,
Ohio State University College of Medicine		(1931)	87.4
Temple University School of Medicine		(1932)	89.4
Meharry Medical College		(1933)	88.3, 88.4
University of Wisconsin Medical School		(1932)	85.7

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Georgetown University School of Medicine		(1929)	New Jersey
Loyola University School of Medicine		(1917)	Illinois
State University of Iowa College of Medicine		(1902), (1930)	Iowa
University of Louisville School of Medicine		(1928)	Kentucky
University of Michigan Medical School		(1928)	Michigan
St. Louis University School of Medicine		(1904) (1914), (1928)	Illinois, Missouri
Washington University School of Medicine		(1928)	Missouri
Western Reserve University School of Medicine		(1931)	Ohio
University of Oklahoma School of Medicine		(1932)	Oklahoma
Woman's Medical College of Pennsylvania		(1926)	Ohio
Baylor University College of Medicine		(1931)	Texas
University of Toronto Faculty of Medicine		(1929)	Iowa

Nevada Reciprocity Report

Dr. Edward E. Hamer, secretary, Nevada State Board of Medical Examiners, reports three physicians licensed by reciprocity, May 1, 1933. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Medical Evangelists		(1923)	California
University of California Medical School		(1922)	California
State University of Iowa College of Medicine		(1930)	Iowa

New Mexico Endorsement Report

Dr. P. G. Cornish, Jr., secretary, New Mexico Board of Medical Examiners, reports 7 physicians licensed by endorsement, April 10, 1933. The following colleges were represented:

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Illinois College of Medicine		(1929)	Illinois
Indiana University School of Medicine		(1928)	Indiana
College of Physicians and Surgeons of Baltimore		(1908)	Maryland
Kansas City Medical College, Missouri		(1896)	Kansas
St. Louis University School of Medicine		(1928)	Illinois
Baylor University College of Medicine		(1932)	Texas
Southwestern University Medical College, Texas		(1905)	Texas

Book Notices

Annual Review of Biochemistry. Edited by James Murray Luck. Volume II. Cloth. Price, $5. Pp. 564. Stanford University, California: Stanford University Press, 1933.

This volume compares favorably with its predecessor of 1932 with respect to the competence of the reviewers and the execution of the difficult task of evaluating literally thousands of research contributions in a single branch of the preclinical sciences. Almost three thousand papers in twenty-five different fields of biochemistry have been reviewed, and these are stated to represent "less than half of the papers of sufficient merit and weight to deserve treatment." It appears that about three new papers on vitamins alone appear each day. These circumstances explain, as almost no other statement can with equal force, why scientific workers and students of medicine need "reviews."

Few of the chapters are written in a style and from an angle that would make them "agreeable reading" to any except tutored investigators. The reports are too objective and specific in content to intrigue the "general reader." To the specialist they supply timely information and, in many instances, worth while criticism that will save him many hours and direct him to unexpected sources of desired information. A few quotations selected at random may illustrate some of the many newer contributions with the explanation of which the book is replete:

The problem of the structure of the known di- and trisaccharides has been practically solved, and the past year brought evidence in confirmation of the earlier conclusions reached through the method of synthesis. —p. 31.

Considerable work indicating that certain of the enzymes and other products of biological importance are protein in nature has been done. —p. 83.

All recent work confirms the fundamental observations of Epstein on hypoalbuminemia as the causal agent of nephrotic edema.—p. 181.

Whether the creatinine-yielding material is the precursor of urinary creatinine is not known. It appears to be distributed about equally between the corpuscles and the plasma. Gaebler's findings are in accord with the earlier observations of Behre and Benedict, who expressed the view that preformed creatinine is not present in blood in detectable quantities.—p. 189.

The discovery of phosphocreatine and its functions appears to justify the belief, held by some for many years, that creatine is an anabolic product which serves as an indispensable component of the muscle cell, and is not a catabolic end-product derived from a certain type of protein metabolism.—p. 198.

While all of the steps are not yet entirely clear, it seems that in the normal muscle the first change, and the one which is primarily responsible for the contraction, is the breakdown of phosphocreatine into its components.—p. 199.

An outstanding study has demonstrated that magnesium is essential to life.—p. 220.

The isolation of acetylcholine from skeletal muscle and heart muscle beautifully substantiates many previous assumptions. Acetylcholine has

long been considered as the *vagusstoff*, the substance which is liberated by the stimulated vagus in the effector organs and which produces the nerve's effects. It is supposed to be the chemical factor whose presence is responsible for producing and maintaining the tonic contraction of skeletal muscle.—p. 321.

The transmission of vitamin A from mammalian parent to fetus has been found by Dann to occur in colostrum and milk rather than through the placenta.—p. 345.

The international character of scientific endeavor and the "brotherhood of men of science" is shown by the geographic distribution of the thirty-two reviewers, who represent eight different countries.

Ergebnisse der medizinischen Strahlenforschung: Röntgendiagnostik, Röntgen-, Radium- und Lichttherapie. Herausgegeben von H. Holfelder, H. Holthusen, O. Jüngling, H. Martius und H. R. Schinz. Band VI. Paper. Price, 72 marks. Pp. 666, with 469 illustrations. Leipzig: Georg Thieme, 1933.

The first chapter of this compilatory periodical is devoted to the investigation of the connection between the skin erythema and the therapeutic x-rays. As a goal of this investigation is laid down the attempt at establishing the correlation between changes in the energy of these rays and the physical doses. For this purpose, testing of the human skin was used.

The wealth of information offered seems to support the expectation of the authors that in this way quite a few as yet doubtful biologic problems may be solved. Von Pannewitz reports the experiences on roentgen therapy of arthritis deformans collected at the Freiburg clinic. In summing up his elaborate reports on diagnosis, technic of treatment and results, he feels justified in recommending this method as the method of choice for the treatment of arthritis deformans. Brauer and Kuchenmeister furnish a detailed survey of the technic and diagnostic possibilities of the roentgenology of the peripheral blood vessels. Schumacher's chapter deals with the roentgen diagnosis in all phases of pregnancy and roentgen observations in the new-born. The authors in conclusion state that roentgen examination furnishes observations only and not a complete diagnosis, which can be built up only by the application of thorough knowledge of the physiologic and pathologic details to the shadowgraphs. Under such conditions the author considers roentgenography an indispensable aid to the obstetrician. Velde reports the roentgenographic changes as found in the gastric mucosa in response to vegetative excitations in achylia gastrica and pernicious anemia. Having, in his monograph on roentgenology of the pancreas, asserts that, though he appreciates the difficulties of visualizing this gland in the shadowgraph, many important diagnostic details may be obtained if one compounds all the symptoms and the spatial and topographic details. Teschendorf gives a complete survey of the roentgenologic manifestations demonstrating the sequelae accruing from pyloric and prepyloric ulcers. Bayer and Pansdorf discuss the roentgenologic diagnosis of diverticula within the alimentary tract and emphasize its clinical dignity. Zuppinger devotes his section to an elaborate discussion of the pathology and therapy of intra-oral malignant tumors, summing up the pertinnet experiences collected at the Zurich surgical clinic. Modern radiotherapy, electrocoagulation and the traditional surgical methods are discussed and weighed as to their efficiency. The author calls attention to the fact that statistics are unreliable unless collected under the principles laid down by Winter. All the monographs contained in this volume excel by the multiude of high grade illustrations and a complete index of the world's literature connected with each topic.

Psycho-Analysis Today: Its Scope and Function. Edited by Sándor Lorand, M.D. Cloth. Price, $4.25. Pp. 370. New York: Covici-Friede, 1933.

This represents a collection of papers meant to orient the reader analytically in those fields which psychoanalysis has penetrated. One receives an impressive picture of how many fields have been richly fertilized by psychoanalysis within the forty years of its existence. It is somewhat difficult to say what audience the book is intended to reach. The introduction mentions general practitioners, psychiatrists, analysts, educators and psychologically interested lay people. But this endeavor to reach such a variety of groups makes the book uneven. There are some excellent popular papers, such as Ferenczi's "History and the Fundamental Concepts of Psychoanalysis," Monroe Meyer's "Dream Interpretation," Brill's "Development of Instinct Life," and the papers of Obendorf, Ames and Broadwin on educational problems. These papers do not presuppose any psychoanalytic knowledge and could serve as an excellent introduction. There are other papers, such as that of Nunberg on psychoanalytic therapy, which so exclusively operate with theoretical assumptions that the factual material is quite lost sight of. This can only be bewildering, particularly as there are no distinct statements as to what is hypothesis and what is fact. A satisfying contrast to papers of this sort are the articles of Gardiner and Lewin on hysteria and obsessional neuroses, which are built on much illuminating factual material. The papers on the psychoses, though some of them are brilliantly written, as that of Zilboorg on the manic-depressive psychoses, show not only the amazing extent to which psychiatric understanding of the psychoses has already been enriched but also the vast amount of work that is still to be done. There are two directions in which one is justified in expecting that this work will contribute to the advancement of psychiatry. First, the utilization of better understanding for a better therapy. Only preliminary attempts have been made thus far. Second, the organization of recent knowledge in order to understand in a much deeper way the contents and effective mechanisms of the different forms of psychoses. This, as these papers show, has not yet been accomplished. What is still missing is insight into the dynamics that brings about a psychosis. The answer that in psychoses a deeper regression takes place than in neuroses is not fully satisfactory, because one still wants to know which factors originate and determine such a regressive process.

Entstehung, Erkennung und Behandlung innerer Krankheiten. Von Dr. Ludolf Krehl, Professor in Heidelberg. Band III: Die Behandlung innerer Krankheiten. Von Dr. Ludolf Krehl. Paper. Price, 18 marks. Pp. 289. Berlin: F. C. W. Vogel, 1933.

This treatise on the practice of medicine is now complete. The final volume, like the first two, has its own table of contents and index. In reviews of the first volumes (THE JOURNAL, June 27, 1931, p. 2230; June 18, 1932, p. 2234; Sept. 3, 1932, p. 853, and Sept. 10, 1932, p. 940), attention was called to the amazing departure by Krehl from the customary organization of similar textbooks. As a rule they begin with one or more chapters on infectious diseases, and then the diseases of separate organs or organ systems, such as the respiratory organs and the alimentary canal, are described. Each disease is dealt with separately, all its phases being portrayed in a single account. In addition to such familiar textbooks there are many others devoted solely to diagnosis, pathology or therapy, but they are rarely portions of a complete work on internal medicine; when they are parts of some system, they are usually the work of different writers. Consequently it seems appropriate to emphasize again the unique character of Krehl's ambition and of its realization.

It is natural to suppose that his plan was largely shaped when he was a young man by the success of his Grundriss der allgemeinen Pathologie, published in 1893, and of its many subsequent revisions, entitled Pathologische Physiologie. One of the English translations of this popular book bore the title "The Basis of Symptoms." It now forms the center piece of this three volume "Practice." Apparently Krehl's bent for the general as opposed to the particular became keener with the passing years. In the preface to this behandlung he refers to his dream of half a lifetime of discussing treatment from the standpoint of its general principles. In the first volume, devoted to etiology, and in the second, devoted to diagnosis, he was successful in presenting matters so that the reader's attention and interest in essentials is steadily maintained. His hope to discuss therapy in a similar manner he bluntly confesses has not been realized; his disappointment is outspoken. He found he was compelled to treat therapy as an entity. It could not be dealt with solely on the basis of its scientific association with pathologic physiology, because the physician is bound to employ all measures that will benefit his patient. Therefore he says that this book has been written mainly to interest beginners in practice. His lament, however, is not altogether justified, because his well rooted habit of dealing broadly with fundamentals is conspicuous throughout the work.

The first third of the volume is occupied by short chapters on varieties of therapy, methods of improving health of the body as a whole, nutrition, physical and mental therapy, the use of drugs, treatment of infections and of fever, and how to

plan treatment. These are followed by chapters on the treatment of gout and diabetes, allergistic conditions, diseases of glands with internal secretions, diseases of the nervous system, and diseases of the blood and circulatory organs, the alimentary canal, respiratory organs, bones, joints and urinary organs.

Krehl vigorously advocates eradication of foci of infection that menace other parts of the body or cause systemic disease. He recognizes the dangers of roentgen or other radiation for deeply placed lesions. On the whole, he is opposed to intravenous medication. Valuable suggestions are made pertaining to relations between the internist and the surgeon and their conferences about operations. Unfortunately, many of the drugs recommended possess names suggesting patented or proprietary remedies used chiefly in Germany. There are no signs of calculated reticence in the author's counsels. The reader's confidence is won by his frank acknowledgments of ignorance no less than by confident statements of the value or worthlessness of certain forms of treatment. His authority to prescribe is also reflected in innumerable suggestions regarding management of unusual symptoms and complications. The medical profession should be extremely gratified with the completion of this expression of the long experience of a renowned clinician.

Lincoln and the Doctors: A Medical Narrative of the Life of Abraham Lincoln. By Milton H. Shutes, M.D. Boards. Price, $5. Pp. 152, with portraits. New York: Pioneer Press, 1933.

In this, Dr. Shutes has with faithful enthusiasm given all that could be said on the subject of Lincoln in his relation to doctors. It is a subject which he has evidently followed with patience until he has collected every available scrap of information. It is an excellent illustration of microscopic attention that has been given to every possible phase of the life of Lincoln. It is attractively written and contains much incidental information about Lincoln. It shows Lincoln in his usual amiable, friendly relations with numerous men but gives no new sidelight in that respect on his character. He had many doctors among his associates, but their acquaintance was casual and incidental and involved no episodes that are important medically or historically. It is not like delving into old Ben Franklin, for example, and his association with medicine. He introduced bifocal glasses, established hospitals and gave wise advice on how to avoid taking cold and really is entitled to a place of considerable importance in medical history. Lincoln knew the doctors of his communities, liked them as he liked most men, consulted them when he had a belly-ache or a bad cold. Like all intelligent books about Lincoln, this will be read with interest. It is the sort of book on which one can spend a few hours with pleasure. Most of the material appeared serially in *Hygeia*.

Clinique médicale des enfants: Maladies infectieuses, rhumatisme articulaire aigu, fièvre typhoïde, scarlatine. Par P. Nobécourt, professeur de clinique médicale des enfants à la Faculté de médecine de Paris. Paper. Price, 55 francs. Pp. 420, with 151 illustrations. Paris: Masson & Cie, 1932.

This excellent collection of lectures on acute articular rheumatism, typhoid and scarlatina in infancy and childhood is the ninth of a series of similar volumes, which have appeared sporadically since 1914, discussing the clinical aspects of various diseases and their peculiarities in early life. The first eight lectures, comprising 179 pages, are devoted to the subject of acute articular rheumatism, which the author prefers to designate Bouillaud's disease. He considers rheumatism a disease which may be located in various parts of the body, as well as in the joints, and which after an acute onset gradually becomes chronic. The extra-articular manifestations—the cardiopathies, cervical and cervicosciatic rheumatism, pulmonary and abdominal rheumatic disorders—are discussed in detail and illustrated by clinical cases. Two chapters are devoted to pancarditis and one to a consideration of rheumatic aortitis. Typhoid and paratyphoid infections are thoroughly covered in ten lectures, special stress being laid on the onset, the complications and the peculiarities of these infections in early life. The author states that typhoid and paratyphoid are not of rare occurrence, although not encountered as frequently as years ago. Scarlet fever is not considered at length, since many of the complications have been discussed in earlier volumes. One lecture is devoted to scarlatinal arthritis and one to scarlatinal adenitis. The book is intended to be a practical clinical guide, and the intention is well carried out.

Wheat, Egg or Milk Free Diets with Recipes and Food Lists. By Ray M. Balyeat, M.A., M.D., F.A.C.P., Associate Professor of Medicine and Lecturer on Diseases Due to Allergy, University of Oklahoma Medical School. Assisted by Elmer M. Rusten, M.B., M.D., Chief of Section, Dermatology, of Balyeat Hay Fever & Asthma Clinic, Oklahoma City, and Ralph Bowen, B.A., M.D., Chief of Section, Pediatrics, of Balyeat Hay Fever & Asthma Clinic, Oklahoma City. Cloth. Price, $2.50. Pp. 149 with illustrations. Philadelphia & London: J. B. Lippincott Company, 1933.

This little volume deals mainly with diets and recipes for patients who are sensitive to wheat, egg or milk or to combinations of these foods. It also contains a few introductory remarks about some of the allergic diseases that may be due to foods. Since many allergic individuals are food sensitive and since egg, wheat and milk are the most common offenders, any information that deals with the details of such diets is of distinct aid to the physician and the sufferer. Apparently this book is intended for both the patient and the physician. One wonders, however, at the advisability of furnishing an egg-sensitive patient, for example, with a book that contains not only diets and recipes for those who are sensitive to egg but also recipes without wheat, without milk, without wheat or milk, without egg or milk, without wheat or egg and without wheat, egg or milk. It would seem that the book would be more suitable for the physician, who may select the necessary diet for the patient and furnish him with a copy of it. The statement that 20 per cent of the population suffer with asthma, hay fever and similar disorders cannot be accepted without challenge. This monograph should fulfil a definite need in the hands of the allergist, the internist, the general practitioner, the dietitian, and all others on whom may fall the tedious duty of preparing diets for patients who are sensitive to these foods.

The Early History of the Infant Welfare Movement. By G. F. McCleary, M.D., D.P.H., Medical Officer of Health, Battersea, Hampstead, Bedfordshire. Cloth. Price, 6s. Pp. 176, with 6 portraits. London: H. K. Lewis & Company, Ltd., 1933.

This little book is more than a history; it is an appreciation of the pioneers in the infant welfare movement who rescued childhood from industrial exploitation, from neglect due to ignorance or indifference, and from the devastating attacks of preventable disease. As might be expected, it deals particularly with the history of child welfare in England; but it does not fail to note progress in other countries and how such progress influenced the British movement. The author seems particularly impressed with the Strauss milk charities in New York at the beginning of the last decade of the nineteenth century. He devotes a considerable part of his chapter on early infant welfare work in America to these milk depots. The early recognition of the importance of breast feeding is emphasized, a principle lately returned to, somewhat belatedly, after an era of overemphasis on artificial feeding. The controversy over pasteurization versus inspection, to insure the purity of milk, is reviewed, as is the early history and origin of medical milk commissions for the supervision of production of certified milk. The book is founded on specific documentary authority, well written, well made and well indexed. Public health workers ought to read it, especially if they are new workers, if only to find out that progress toward better infant health is based on deeper and more significant community changes than the mere establishment of baby clinics, though these have their proper place. Physicians will be happy to read the record of contributions to the infant welfare movement in its early years made by the medical profession and ought to wonder why leadership in this field has, in many localities at least, passed into lay hands.

The Vitamins in Health and Disease. By Barnett Sure, Ph.D., Professor of Agricultural Chemistry, University of Arkansas, Fayetteville, Arkansas. Cloth. Price, $2. Pp. 206. Baltimore: Williams & Wilkins Company, 1933.

This is an interesting summary, in nontechnical language understandable to the general reader, of information concerning the effect on health of insufficiency of vitamins in the diet. The properties of the vitamins, chemical operations for their isolation and identification, their distribution in natural and prepared foods which are already adequately described in other works on vitamins are either omitted or but lightly touched on. Problems requiring study on the effect of vitamin deficiency on health are defined so far as permitted by present knowledge; the book,

therefore, is an aid to future research. Emphasis is placed on the application of data already accumulated for improvement of public health by adequate vitamin intake. Clinical evidence is presented on the effect of vitamins on milk secretion, infant nutrition, growth, appetite and the teeth. The selection of foods for maximum vitamin content in the general diet, and the vitamin diet during pregnancy, the nursing period and the first year of life are prominently discussed. The book should be a valuable textbook for nutrition courses in colleges, for dietitians and nurses, for assisting housewives in planning the daily menu, and for patients requiring dietary instruction.

Le nystagmus vestibulaire et les réactions de mouvements. Par R. Claoué, professeur libre d'oto-rhino-laryngologie, Bordeaux. Publié en 1918. Réimpression en 1933. Paper. Pp. 64, with 19 illustrations. Paris: Norbert Maloine, 1933.

This is a new edition of a work first brought out by Claoué in 1918 and now revised by his son. It is really a "multum in parvo" and gives a clear exposition of vestibular nystagmus and the various ways of stimulating the labyrinth. The text is well arranged, the style is clear, the subject matter is considered in a logical manner, and the illustrations are relatively numerous. This little monograph is especially to be recommended to those who have not yet had a great deal of experience with doing the vestibular tests, for here the whole subject is taken up in a concise, clear style, obviating the necessity of consulting larger works, especially with reference to the fundamental principles of the examination of the vestibular apparatus.

A New Approach to Dietetic Therapy in Epilepsy, Eclampsia of Pregnancy and Infancy, Migraine, Angina Pectoris, Bronchial Asthma, Allergic Diseases, Gout, Essential Hypertension, Pernicious Anemia, Polycythemia, Acne Vulgaris, Nervous and Psychic Disturbances, Constitutional Changes, Aging, etc. Metabolism of Water and Minerals and Its Disturbances. By Eugene Földes, M.D., Cloth. Price, $5. Pp. 434, with 14 charts. Boston: Richard G. Badger, 1933.

In a book of this nature, which deals with the concepts greatly opposed to the usual therapeutic-dietetic procedures, the reader is confronted with the difficulty of weighing evidence. Any one who has ever attempted therapeutic experiments, especially those involving diet, has realized the difficulties of interpreting results. Probably to appraise the importance of the present contribution would require a set of control experiments. Since this is obviously impossible all one can say is that the book reads like an interesting story but naturally causes a certain feeling of doubt. It is somewhat difficult to conceive that the changes in salt and water metabolism have such a marked influence on such varying diseases as epilepsy, angina, gout, essential hypertension and acne vulgaris. The only way properly to assay the value of this book would be by the experimental method.

Der Stoffaustausch zwischen Mutter und Frucht durch die Placenta. Von H. Schlossmann, Privatdozent am Pharmakologischen Institut der Medizinischen Akademie Düsseldorf. Erweiterte Sonderausgabe des gleichnamigen Beitrages in Ergebnisse der Physiologie, Band 34. Paper. Price, 6.60 marks. Pp. 73, with 8 illustrations. Munich: J. F. Bergmann, 1933.

The extent of the work that has been done on the metabolic exchanges between mother and fetus through the placenta is probably appreciated by relatively few, even among obstetricians, physiologists and pharmacologists. Mayer, in 1817, gave the first definite proof of the transmission of a substance through the placenta. This substance was potassium ferrocyanide. Since that time, most of the substances known to occur in the normal metabolism, as well as many drugs and poisons, have been examined. The size of the molecule is likely to be the determining factor; e. g., protein derivatives larger than amino acids are in general refused transmission, as are colloidal dyes such as trypan blue and congo red. Schlossmann's able monograph provides not only a key to all these observations, but also a critical evaluation of the experimental methods employed and the theories that have been advanced. The contents include: morphology of the placenta, paths of exchange between mother and fetus, metabolism of the placenta itself, responses of the vessels of placenta and umbilical cord to stimuli, experimental methods; gaseous exchange between mother and fetus, oxygen consumption of the fetus; transmission through the placenta of carbohydrates, proteins, lipoids, fats, hormones, vitamins, salts, other physiologic substances and foreign substances. The comparative physiology of the subject is discussed and the view taken that the degree of development of the placenta in no way influences the mechanism of transmission of substances. The higher types of placentas with their fewer layers seem to be permeable to larger molecules (as shown in the table in Needham's Chemical Embryology). The author's main contention—one which has long been championed by Slemons in this country—is that transmission in either direction is only by simple physical processes, such as diffusion; there are no grounds for the vitalistic claims often made. The subject appears to be thoroughly reviewed up to the present year and certainly no more valuable treatise covers the field of placental transfer.

Medicolegal

Practice of Naprapathy Enjoined; Naprapathy Explained.—The state of Iowa filed a petition to enjoin the defendant from practicing medicine and surgery in Iowa. The trial court dismissed the petition, and the petitioner appealed to the Supreme Court of the state.

The defendant conceded that he practiced the healing art. He contended, however, that because he practiced naprapathy and used neither medicines nor surgery, he did not practice or claim to practice medicine or surgery, within the meaning of the medical practice act of the state. In explanation of naprapathy, he testified:

> Our theory is that disease originates in the baser tissues of the body, such as connective tissue, especially white fibrous connective tissue, which binds and holds the bones forming the joints of the body together. And if they are in any way injured they are prone, as connective tissue always is, to thicken and shrink. And our theory is that a stretchment of the tight connective tissue structures is essential in the restoration of the normal function in the organs supplied by the nerves involved in the tightening of the tissues. And that makes the essential difference, thus, between a chiropractor and a naprapath. It would bind the vertebra closer together, and it would create a condition the opposite of a partial subluxation or displacement, so that two vertebra would be more difficult to displace one from the other in this abnormal tightened condition than it would if it were normal. There would be a restricted movement.

One Oakley Smith, described in the record as the discoverer of naprapathy, testified for the defendant as follows:

> Naprapathy is a non-medical science or profession, based on three elements. One: discovery. The discovery that shrunken connective tissues or ligaments produce a great variety of remote ailments. Second element is invention; the invention of a method by which manipulation or exercise or motions could be symbolized in record form. And one inheritance. The same as when one might inherit money from his parents and didn't earn it. . . . In the broad sense of physical education chiropracty [sic] and the non-medical part of osteopathy and Swedish movement, all belong to the non-medical and non-surgical field. From thereon there are definite technical differences, such as those described by Doctor Howard, that instead of the subluxation or bone out of place the naprapath has discovered by means of laboratory instruments and precision it was a case of shrunken ligaments damaging the nerve, rather than bone damage. That made a difference in the shortening up of the number of treatments required, and, increasing the surety of cure. In other words, the difference is largely a matter of emphasis. But that same thing might be said regarding the difference between naprapathy and physical education as taught in the University of Iowa, where they treat sprains and strained ligaments and injured joints, curvature of the spine, different kinds of flat foot, weak arches of the foot; there again it is a matter of emphasis. Physical directors do that for pay without a license or any physician or surgeon around. . . . Our school does not teach the healing of human ailments by the administration of drugs. That is outside of our theory. We teach no surgery. Our pupils are taught to treat human ailments by manipulation. . . . I think Kentucky is the only state which has made a provision to permit naprapaths to take an examination where it wouldn't be all farce. That is the opinion of the naprapaths. . . . This is not only a method of treatment of human ailments but I have cured horses. It is not limited to human ailments. It is limited to anything that has a spinal column and joints and ligaments. It is a healing art. . . . Naprapathy is a non-medical healing art. Pupils of our school were admitted to practice in Illinois. They are not now. At one time they were admitted in Indiana, Pennsylvania, California and Oregon, but they are not at the present time. No state at the present time issues licenses to naprapaths except Kentucky.

In *State* v. *Hughey*, 208 Iowa 842, 226 N. W. 371, said the Supreme Court, medicine was not given nor was surgery practiced, but the defendant, who claimed to diagnose ailments and to treat them by a laying on of hands, was held to have practiced medicine and surgery. The fact that the present defendant, continued the court, uses a system analogous to

osteopathy and chiropractic is not material. If the defendant were a licensed osteopath or chiropractor, a different question would be presented. Since the medical practice act of Iowa gives no recognition to naprapathy, the courts and the administrative officers of the state can give no recognition to it. The system must be deemed only a name and an evasion of the statute.

The defendant maintained an office in one of the principal office buildings of Cedar Rapids. In the directory of the building his name appeared as "Dr. Banner Howard." Admittedly he undertook to diagnose the ailments of his patrons. As a witness, he claimed to have studied "diagnosis." Correct diagnosis is one of the first duties of the qualified physician, but purported [sic] diagnosis is the first resort of the unqualified and the first requisite of a miraculous cure; ailments which an unqualified practitioner professes to discover and to cure are only such as his own diagnosis declares. Because his new system of naprapathy affords him a complete refuge from any critic who does not follow it, the defendant is subject to no check other than his own judgment. It is not a valid defense, said the Supreme Court, for the defendant to show that he is practicing naprapathy.

The defendant argued that the Iowa statute authorizing the proceedings by injunction was unconstitutional. This question, said the court, was adjudicated against the defendant on a former appeal (*State* v. *Howard* (Iowa), 241 N. W. 682; J. A. M. A. **99**:1886 (Nov. 26) 1932).

The judgment of the trial court, dismissing the petition of the State for an injunction, was reversed.—*State v. Howard (Iowa), 245 N. W. 871.*

Workmen's Compensation Acts: Charitable Hospital an Employer Within Meaning of Act.—The courts of Missouri have held that at common law a charitable institution is exempt from liability for its torts. On behalf of the Barnes Hospital, a charitable institution, it was argued that the workmen's compensation act did not alter that rule nor include charitable institutions within the purview of the act; that the purpose of the act is to provide for workmen engaged in business or industry, and that to hold that charitable institutions are liable for compensation under the act would be contary to established public policy.

Charitable hospitals have been held to be exempt at common law from liability for their torts, said the St. Louis court of appeals, but it does not follow that the legislature cannot create a rule of liability for such institutions. Under the general language of the workmen's compensation act, the hospital and the deceased employee in this case were operating within its provisions when the accident occurred, unless the act had been rejected or the hospital was among the industries specifically excepted from the purview of the act. The hospital made no claim of having rejected the act or of inclusion among the excepted industries. The term "employer," as defined in the act, is comprehensive enough, the court thought, to include charitable institutions, and nothing in the act discloses a legislative intent to limit its application to industries and businesses within the ordinary sense of those words. In framing the act the legislature had many opportunities to exempt charitable institutions from its operation. The fact that no exemption was made warrants the assumption that the legislature intended to bring such institutions within the purview of the act. The judgment of the circuit court, holding that the Barnes Hospital is within the purview of the workmen's compensation act of Missouri, was affirmed.—*Hope v. Barnes Hospital (Mo.), 55 S. W. (2d) 319.*

Workmen's Compensation Acts: Typhoid Fever Not Compensable Under Act but by Suit at Law.—Mills, in the course of his employment, contracted typhoid fever by drinking contaminated water furnished by his employer. He sued for damages. His employer filed an answer, contending that Mills should make his claim under the workmen's compensation act and that the court was without jurisdiction. A demurrer interposed by Mills, denying the sufficiency of the answer, was overruled by the trial court, and Mills then appealed to the Court of Appeals of Kentucky.

The Kentucky workmen's compensation act defines compensable injuries as "personal injuries sustained by the employee by accident arising out of and in the course of his employment." It provides specifically "that personal injury by accident as herein defined shall not include diseases except where the disease is a natural and direct result of a traumatic injury by accident." There was no contention in this case that there was a traumatic injury. The disease from which the plaintiff suffered was caused by his taking into his stomach impure drinking water and by the absorption into his system of typhoid bacilli contained in that water. It seems manifest, said the Court of Appeals, that the injury complained of was not compensable within the meaning of the workmen's compensation act. The court below erred in overruling Mills' demurrer and thus sustaining the defendant's answer denying the jurisdiction of the trial court. The judgment of the trial court was therefore reversed and the case remanded. The plaintiff was thus left to his remedy through the courts.—*Mills v. Columbia Gas Const. Co. (Ky.), 55 S. W. (2d) 394.*

Malpractice: Res Ipsa Loquitur.—The plaintiff was injured when an x-ray machine fell on her face while she was in a dental chair. Her evidence disclosed that the machine was under the exclusive control of the dentist, the defendant in this case, and that if due care had been exercised by him the accident would not have happened. The doctrine of res ipsa loquitur applied, in the opinion of the appellate court of Indiana, and the burden of explaining how the accident could have happened consistent with the exercise of due care was cast on the defendant.—*Bence v. Denbo (Ind.), 183 N. E. 326.*

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Boston, September 18-22. Dr. William P. Wherry, 1500 Medical Arts Building, Omaha, Executive Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Lucerne-in-Quebec, Canada, September 11-14. Dr. Magnus A. Tate, 19 West Seventh Street, Cincinnati, Secretary.

American College of Surgeons, Chicago, October 9-13. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director-General.

American Congress of Physical Therapy, Chicago, September 11-15. Dr. F. B. Balmer, 35 East Wacker Drive, Chicago, Secretary.

American Public Health Association, Indianapolis, October 9-12. Dr. Kendall Emerson, 450 Seventh Avenue, New York, Acting Executive Secretary.

American Roentgen Ray Society, Chicago, September 25-30. Dr. Eugene P. Pendergrass, 3400 Spruce Street, Philadelphia, Secretary.

Associated Anesthetists of the United States and Canada, Chicago, October 8-12. Dr. F. H. McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary.

Association of Military Surgeons of the United States, Chicago, September 25-27. Dr. J. R. Kean, Army Medical Museum, Washington, D. C., Secretary.

Colorado State Medical Society, Colorado Springs, September 14-16. Mr. Harvey T. Sethman, 537 Republic Building, Denver, Executive Secretary.

Delaware, Medical Society of, Wilmington, September 26-27. Dr. W. O. La Motte, 604 Medical Arts Building, Wilmington, Secretary.

Idaho State Medical Association, Twin Falls, September 18-19. Dr. Harold W. Stone, 105 North Eighth Street, Boise, Secretary.

Indiana State Medical Association, French Lick, September 25-27. Mr. T. A. Hendricks, 23 East Ohio Street, Indianapolis, Executive Secretary.

Kansas City Southwest Clinical Society, Kansas City, Mo., October 3-5. Dr. Lewis G. Allen, 601 Minnesota Avenue, Kansas City, Kan., Secretary.

Kentucky State Medical Association, Murray, September 11-14. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Michigan State Medical Society, Grand Rapids, September 12-14. Dr. F. C. Warnshuis, 148 Monroe Avenue, Grand Rapids, Secretary.

Mississippi Valley Conference on Tuberculosis, Kansas City, Mo., October 6. Dr. E. A. Meyerding, 11 West Summit Avenue, St. Paul, Secretary.

Nevada State Medical Association, Las Vegas, September 29-30. Dr. Horace J. Brown, 120 North Virginia Street, Reno, Secretary.

New England Surgical Society, Boston, September 29-30. Dr. J. M. Birnie, 14 Chestnut Street, Springfield, Mass., Secretary.

Northern Minnesota Medical Association, Willmar, September 8-10. Dr. O. O. Larsen, Detroit Lakes, Secretary.

Ohio State Medical Association, Akron, September 7-8. Mr. Don K. Martin, 131 East State Street, Columbus, Executive Secretary

Pennsylvania, Medical Society of the State of, Philadelphia, October 2-5. Dr. Walter F. Donaldson, 500 Penn Avenue, Pittsburgh, Secretary.

Southern Minnesota Medical Association, New Ulm, September 25. Dr. M. C. Piper, Mayo Clinic, Rochester, Secretary.

Utah State Medical Association, Salt Lake City, September 14-16. Dr. L. R. Cowan, 305 Medical Arts Building, Salt Lake City, Secretary.

Vermont State Medical Society, Barre, October 5-6. Dr. W. G. Ricker, 31 Main Street, St. Johnsbury, Secretary.

Washington State Medical Association, Seattle, August 28-30. Dr. Curtis H. Thomson, 1305 Fourth Avenue, Seattle, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama Medical Association Journal, Montgomery

2: 373-412 (April) 1933

Code of Action in Solving Medical Economics. J. R. Garber, Birmingham.—p. 373.
*General Diseases Causing Abnormal Uterine Bleeding. J. E. Walker, Opelika.—p. 377.
Yeast Infections. G. Walsh, Fairfield.—p. 380.
Review of Adrenal Therapy. E. A. Bancker, Jr., Atlanta, Ga.—p. 383.
Rubin Test: Per Uterine Insufflation of Fallopian Tubes. C. K. Weil, Montgomery.—p. 387.
Pneumonia: Treatment by Inhalations of Carbon Dioxide. J. F. Alison, Selma.—p. 392.

Diseases Causing Uterine Bleeding.—Walker states that thrombopenic purpura, hypothyroidism and primary hypochromic anemia are frequent causes of abnormal uterine bleeding. In the absence of local pelvic pathologic disorders that adequately account for the uterine bleeding, no woman should be subjected to the perils and tragedy of an artificial menopause until these diseases have been eliminated by a general examination which includes gastric analysis, basal metabolism and a complete study of the blood. The failure to recognize any of these diseases as the cause of uterine bleeding is all the more deplorable since a specific type of therapy exists for each of them: splenectomy or roentgen irradiation of the spleen for thrombopenic purpura; thyroid for hypothyroidism, and massive doses of iron for primary hypochromic anemia. Primary hypochromic anemia is of particular importance since it has the blood picture always considered until recently characteristic of secondary anemia. The hemoglobin is often as low as 30 or 40 per cent in this disease.

American Journal of Clinical Pathology, Baltimore

3: 1-110 (Jan.) 1933

Experience with Hormone Test for Pregnancy. F. E. Sondern and I. J. Silverman, New York.—p. 1.
Results of Two Years' Experience with Friedman Test. H. L. Reinhart, Columbus, Ohio.—p. 9.
*Comparative Value of Monochlorbenzene and Thymol When Used with Fluoride as Preservatives of Blood for Chemical Analysis. R. C. Lewis and G. E. Mills, Denver.—p. 17.
Evidence in Support of Neuro-Epithelial Nature of Moles. A. C. Broders and Eleanor M. Fletcher, Rochester, Minn.—p. 29.
Flask for Diluting Antigens Used in Serum Tests for Syphilis. W. A. Hinton, Boston.—p. 41.
*Laboratory Diagnosis of Tuberculous Meningitis. A. G. Foord and Anna Forsyth, Pasadena, Calif.—p. 45.
Rose Bengal Test of Liver Function. W. P. Stowe, G. D. Delprat and A. Weeks, San Francisco.—p. 55.
Present Status of Serologic Diagnosis of Syphilis, with Especial Reference to Basic Principles. R. A. Kilduffe, Atlantic City, N. J.—p. 61.
Hemoglobin Standards. R. L. Haden, Cleveland.—p. 85.

Preservatives of Blood for Chemical Analysis.—Lewis and Mills found a combination of monochlorbenzene and potassium fluoride to be a more effective preservative for blood sugar, total nonprotein nitrogen and urea than thymol and potassium fluoride. Little change occurred in the uric acid and the creatinine with either combination. Specimens of blood may be transported, being in transit up to eight days with no appreciable change in either the blood sugar or the nitrogenous blood chemical constituents when a preservative combination composed of 0.275 Gm. of potassium fluoride and 0.2 Gm. of monochlorbenzene for each 20 cc. of blood is employed. The sugar is well preserved and only slight changes occur in the nonprotein nitrogenous constituents of the blood during a period of twelve days. Specimens of blood that are subjected to a temperature of 37 C. for twenty-four hours or longer will not be satisfactorily preserved with monochlorbenzene and potassium fluoride or thymol and potassium fluoride. If a specimen of blood treated with monochlorbenzene and potassium fluoride has been subjected to high temperatures during transportation, there will be a failure of preservation of the chemical constituents of the blood. Such blood will contain numerous small clots, which will interfere with pipetting. The absence of such clots, therefore, offers a simple criterion as to successful preservation. When a specimen of blood is preserved by the addition of 0.2 Gm. of monochlorbenzene to 20 cc. of blood, oxalated specimens of blood may be stored in a refrigerator at 6 C. for ninety-six hours with practically no variation in the chemical constituents of the blood.

Laboratory Diagnosis of Tuberculous Meningitis.—Foord and Forsyth state that, in the diagnosis of tuberculous meningitis from cerebrospinal fluid, the finding of tubercle bacilli on smear or culture or the production of tuberculosis in a guinea-pig injected with the fluid is conclusive evidence of the disease. By the last two means the diagnosis can rarely, if ever, be made before the patient is dead. Smear examination, if done on repeated samples, should reveal bacilli in from 80 to 100 per cent, depending on the technic and persistence of the examiner. But in the absence of a positive smear the following observations, especially when they are all present, should warrant the tentative diagnosis of tuberculous meningitis: (1) increased cell count, averaging about 200, producing a slight ground glass appearance in the fluid; (2) differential count showing marked preponderance of lymphocytes or a moderate number of polymorphonuclear leukocytes in smear-negative cases; (3) strong tests for globulin from 2 plus to 4 plus; (4) formation of an inverted pine tree web on standing for several hours or over night; (5) colloidal gold curve showing maximum precipitation in the sixth or seventh tube; (6) sugar content moderately or markedly reduced, averaging about 36 mg. per hundred cubic centimeters of fluid, and (7) decrease in chlorides below 650 mg. The authors especially stress the association of a marked decrease in sugar with a noteworthy decrease in chlorides in fluids not showing characteristics of a suppurative meningitis as a strong presumptive sign of tuberculous meningitis.

American Journal of Ophthalmology, St. Louis

16: 289-383 (April) 1933

Mooren's Ulcer. A. J. Bedell, Albany, N. Y.—p. 289.
Treatment of Corneal Infections. J. E. Weeks, Portland, Ore.—p. 293.
School Clinics. E. Jackson, Denver.—p. 298.
Choice of Operations in Secondary Glaucoma. W. W. Weeks, New York.—p. 301.
Ophthalmic Hospital at Madras: Historical Note. R. E. Wright, Egmore, Madras, India.—p. 308.
Nodular Degeneration of Cornea. J. H. Judd, Omaha.—p. 310.
Practical Cyclodamia. D. Smith, Bridgeport, Conn.—p. 319.
Experimental Hypertension and Retinal Arterial Spasm. S. A. Agatston, New York.—p. 327.
Siderosis Bulbi. M. Davidson, New York.—p. 331.

Archives of Internal Medicine, Chicago

51: 487-642 (April) 1933

"Dyspituitarism": Twenty Years Later, with Special Consideration of the Pituitary Adenomas. H. Cushing, Boston.—p. 487.
Periduodenitis and Pericholecystitis: Anatomic, Clinical and Roentgen Study of Adhesions in Upper Right Quadrant. S. G. Meyers and A. R. Bloom, Detroit.—p. 558.
*Acropachy: Secondary Subperiosteal New Bone Formation. H. M. Thomas, Jr., Baltimore.—p. 571.
Relationship Between Oxygen Consumption and Nitrogen Metabolism: II. In Leukemia. C. W. Baldridge and Adelaide Barer, Iowa City.—p. 589.
*Treatment of Polycythemia Vera (Erythremia) with Solution of Potassium Arsenite. C. E. Forkner, T. F. McN. Scott and S. C. Wu, Boston.—p. 616.
*Diagnosis of Obscure Cases of Pernicious Anemia. R. T. Beebe and M. M. Wintrobe, Baltimore.—p. 630.

Acropachy.—Thomas presents the case of a young Negro in whom diffuse goiter developed with hyperthyroidism, for which subtotal thyroidectomy was performed. Eight months later he presented clubbing of the fingers and brawny swelling of the legs, and, when examined two years later, was found to have an extreme degree of acropachy. A careful examination made at the time of operation and repeated on two further occasions, two and again four years after the operation, failed to reveal any other disease or lesion of the heart or lungs.

The author has found no mention of similar cases in the literature, but he discusses the important articles on acropachy as it occurs in various other conditions. Nothing is known concerning the mechanism of the bony changes in this syndrome. This new and unusual case adds strong evidence to the importance of altered blood flow in the production of subperiosteal new bone formation. The only conclusion he is able to reach, after considering the many factors involved in cases of acropachy, is that an altered blood flow offers itself as the most plausible common etiologic factor.

Treatment of Polycythemia Vera.—Forkner and his associates treated six cases of polycythemia vera by the oral administration of relatively large doses of solution of potassium arsenite. Distinct improvement in the clinical and hematologic manifestations has occurred in each case in from twenty to fifty days. The induced remissions were characterized by reduction of the erythrocyte, hemoglobin and hematocrit values to normal or nearly normal, reduction of the basal metabolic rate to normal, increase in body weight, increase in strength, and subsidence or disappearance of symptoms. The remissions may be prolonged at least for several months by continuation of the medication in reduced amounts. The administration of solution of potassium arsenite to patients suffering from polycythemia vera constitutes a safe and reliable method for the palliative treatment of this disease. The authors are now of the opinion that beginning doses of 3 or 4 minims (0.18 or 0.24 cc.) three times daily are somewhat better borne at the start and produce as satisfactory results as larger doses. This initial dose is continued for two days, and then the total daily dose is increased by 3 minims. This amount is given for two days. Thereafter the dose is increased at the same rate until the first sign of intoxication, anorexia, is noted. This sign, as a rule, is first noticed when the dose reaches about 24 minims (1.48 cc.) daily. When the dose of 8 or 10 minims three times daily has been reached, or earlier if indicated, the subsequent increments in amounts of the drug must be added more slowly at the rate of an increase of not more than 1 minim to the total daily dose. By such a method, medication may be carried up to 12, 15 or even 20 minims (0.74, 0.92 or 1.25 cc.) three times daily. The policy the authors have found of most value is to continue increasing the medicine until desired effects are obtained or until the limit of tolerance has been reached. Frequently, the best therapeutic results are to be obtained with the dose that is near the upper limit of tolerance. When the blood has improved considerably or when the limit of tolerance has been reached, the solution of potassium arsenite should be gradually withdrawn. The total daily dose may be decreased by 1 minim (0.06 cc.) daily until the patient is taking about 5 minims (0.3 cc.) three times daily, which amount may be continued without harm for at least several months. If severe toxic symptoms develop, the drug may be omitted for forty-eight or seventy-two hours and then resumed in doses equivalent to about three fourths or two thirds of the amount that the patient was taking at the time the symptoms developed. From this point, the drug may again be increased or decreased as indicated by the effects on the patient. The drug is best given either with or immediately after meals, well diluted in orange or tomato juice or some other flavored drink.

Diagnosis of Pernicious Anemia.—Beebe and Wintrobe report two cases in which it was not possible to make an absolute diagnosis of pernicious anemia by the usual methods of examination. Castle's discovery of the efficacy of hamburger steak, digested with gastric juice from normal persons, in producing a remission in pernicious anemia was utilized to establish the diagnosis in these cases. This was done by comparing the effectiveness of the gastric juice obtained from the patients in question with that of gastric juice from normal persons when fed to patients suffering from pernicious anemia. Such a test is of assistance in confirming the diagnosis: (1) when, because of infection, chronic disease of any nature and arteriosclerosis, the response to appropriate treatment is inadequate and leaves room for doubt as to the diagnosis; (2) in cases of damage to the spinal cord and little or no anemia, when an absolute diagnosis cannot be made on the basis of the morphology of the blood or of therapeutic tests, and (3) in patients with little anemia who are already receiving liver therapy and in whom cessation of treatment for the purpose of diagnosis might prove harmful and permit an onset or advance of the damage of the spinal cord. The importance of making a definite diagnosis early in the disease is emphasized, particularly in patients suffering from involvement of the central nervous system. In such cases, if the diagnosis is definitely established, vigorous therapy can be continued for many years, with the full confidence of both the patient and the physician that the diagnosis is correct and that time and effort are not being wasted in treatment.

Florida Medical Association Journal, Jacksonville

19: 411-462 (April) 1933

Meckel's Diverticulum. G. E. W. Hardy, Tampa.—p. 417.
Cancer of Cervix. T. F. Jackson, Dade City.—p. 419.
Responsibility of Medical Profession in Cancer Situation. J. M. Hoffman, Pensacola.—p. 421.
Recurrent Agranulocytosis: Report of Case. M. Mallory, Orlando.—p. 422.
Surgery of Sympathetic Nervous System. E. F. Fincher, Jr., Atlanta, Ga.—p. 424.
*Symptoms, Diagnosis and Treatment of Ileocolitis. N. L. Spengler, Tampa.—p. 428.
Perspective of Cancer. D. P. Bird, Lakeland.—p. 430.

Ileocolitis.—Spengler states that an examination of the urine should be made following all severe cases of colitis and that repeated examinations are indicated during the attack, because pyelitis is a frequent complication. The child should receive ample food of a good variety with a large residue of digestion, and the peristalsis should be controlled by opium. The well nourished baby with a negative history of illness, with hard and firm muscular development will comprise the mild cases. Patients with a more unfavorable past history, with useless fat, soft and flabby muscular tone, whether breast fed or artificially fed, will comprise the severe cases. In the severe cases, oral, rectal and nasal feeding should be employed in the order mentioned. Purgatives, with a twenty-four to forty-eight hour starvation period, are contraindicated in any case of colitis, except in the fermentative or toxic type. The diseased area of the ileum and colon in colitis is negligible so far as its effect goes on the normal absorption of food. An ample diet assures a normal amount of food, thereby maintaining a correct proportion between growth, repair and waste.

Journal of Bacteriology, Baltimore

25: 323-434 (April) 1933

Study on Collodion Membrane Filters. I. Asheshov, Raguza, Dalmatia, Yugoslavia.—p. 323.
Id.: II. I. Asheshov, Raguza, Dalmatia, Yugoslavia.—p. 339.
Secondary Colonies of Bacteria, with Especial Reference to Bacillus Mycoides. I. M. Lewis, Galveston, Texas.—p. 359.
Bacteroides of Human Feces. A. H. Eggerth and B. H. Gagnon, Brooklyn.—p. 389.
*Significance of Brucellar Agglutinins in Human Serums. J. D. A. Gray, Liverpool, England.—p. 415.
Detection of Microbial Lipase by Copper Soap Formation. J. A. Berry, Seattle.—p. 433.

Brucellar Agglutinins in Human Serums.—Gray made a study of the occurrence, distribution and specificity of brucella agglutinins in the serums of human beings and immunized rabbits. In a series of 2,116 human serums submitted for the Wassermann test, 275, or 13 per cent, showed complete or partial agglutination in a dilution of 1:30. By means of a questionnaire it was shown that 15 of 62 women showing agglutinins in their serums gave histories of abortion; 53 of the 275 serums gave positive or doubtful reactions to the Wassermann test, and there was no obvious relation to TAB vaccination. In rabbits recently immunized by the intravenous inoculation of killed brucellae and in infected human beings, the specific agglutinins are located mainly in the carbonic acid soluble fraction of the serum. Those in the soluble moiety decrease, however, much more rapidly than those in the insoluble portion. Exposure of the serums and their fractions at 56 C. for a half hour, whether from infected or "normal" human beings or immunized rabbits, was usually associated with slight reductions in the titers. The zone phenomenon was observed with soluble and insoluble fractions as well as with whole serums. In a series of 40 serums selected for their high titers for brucellar suspensions from more than 5,000 routine Wassermann serums, the ratio of the titers of the soluble and insoluble fractions was as high as 10 in four serums. These four serums were obtained from persons who may have been experiencing recent infections. The remaining 36 samples gave ratios below 10 and were usually associated with a definite pathologic condition

other than a brucellar infection. A high ratio of the titers of the soluble and insoluble fractions may be characteristic of an early active or very recent infection and therefore a better diagnostic criterion than the titer of the whole serum when that is below 200. If further evidence accumulates to substantiate this conclusion, a high ratio would be of great value to public health officials in identifying present or recent infections in which the titer of the whole serum remains persistently low. During an attack of gonorrhea, an increase may occur in the brucellar agglutinins already present in the serum, but brucellar agglutinins have not been found to arise de novo during such an infection.

Minnesota Medicine, St. Paul

16: 219-286 (April) 1933

Care of the Indigent: Methods and Plan of Operation. A. F. Branton, Willmar.—p. 219.
Surgical Consideration of Cerebral Lesions. A. W. Adson, Rochester. —p. 221.
Carcinoma of the Esophagus. E. C. Bartels, Duluth.—p. 226.
Primary Carcinoma of the Liver. J. F. Briggs, St. Paul.—p. 230.
Pitfalls in Diagnosis of Renal Tumors. T. H. Sweetser, Minneapolis. —p. 235.
New Surgery of Bladder Neck Obstruction: Improved Instruments and Methods: Review of Cases. F. E. B. Foley, St. Paul.—p. 240.
Etiology of Common Anal Pathology and Focal Infection. J. K. Anderson, Minneapolis.—p. 247.
Modern Methods for Caring for the Deaf and Hard of Hearing. H. Newhart, Minneapolis.—p. 251.
Treatment of Acute Infections of Extremities. J. M. Hayes, Minneapolis.—p. 255.
Abscess of the Mediastinum: Report of Case. H. J. Lloyd and R. G. Hassett, Mankato.—p. 257.
Congenital Abnormalities of Genito-Urinary Tract and Their Surgical Treatment. W. Walters, Rochester.—p. 260.
*Treatment of Intracapsular Fractures of the Hip. M. O. Henry, Minneapolis.—p. 263.
Dacryocystitis in Infants. R. A. Campbell, Minneapolis.—p. 267.

Treatment of Intracapsular Fractures of the Hip.—Henry discusses closed and open surgical methods of treatment for intracapsular fractures of the hip. He believes that simple adhesive traction remains the method of choice in patients whose general condition will not tolerate more extensive treatment. The Whitman cast method, with Thomson's modification and Cotton's artificial impaction, is still the best treatment for the majority of cases of intracapsular fracture of the hip. Experimentation has shown that continuous and accurate contact with absolute fixation of the fractured surfaces is all important in these cases and that early functional stimulation of the circulation is likewise important. Ellis Jones's trochanteric transplantation is the best open surgical procedure for recent cases, but it must be reserved for selected cases. The modern walking caliper splint is a great aid to the patient with nonunion who is not amenable to or suitable for further surgical treatment. Whitman's reconstruction operation is excellent in certain cases of nonunion.

Public Health Reports, Washington, D. C.

48: 411-436 (April 21) 1933

*Inactivation of Antistreptococcus Bacteriophage by Animal Fluids. Alice C. Evans.—p. 411.

Antistreptococcus Bacteriophage.—The experiments of Evans show that antistreptococcus bacteriophage injected into mice inoculated with a minimal lethal dose of sensitive culture did not palliate the infection when the two doses were given simultaneously or when the bacteriophage and streptococci were incubated together previous to inoculation. There was some evidence that bacteriophage may activate a sublethal dose of the streptococcus in mice. Bacteriophage, injected intravenously into rabbits simultaneously with a dose of streptococcus which would kill the majority but not all of the control rabbits, failed to influence appreciably the mortality rate. There was some evidence, however, that the course of the disease was unusually violent in the bacteriophage treated rabbits that succumbed to the infection. The same results were obtained when bacteriophage was injected into rabbits three days before the infecting dose of streptococcus. Bacteriophage injected intravenously into a rabbit could be demonstrated in the blood until the second day, but it had disappeared from the blood on the third day. It could then be demonstrated in the spleen but not in the liver. In test tube experiments, bacteriophagy is completely inhibited by blood, pus, ascitic fluid, bile and saliva, and partially by urine. The fluid portion of blood and of pus contains the active inhibitory constituent, the washed whole cells being almost or quite inert under the conditions of these experiments. In addition to the definite inactivation of bacteriophage by undiluted or slightly diluted body fluids, there is an irregular inhibition in higher dilutions caused by unknown factors.

Texas State Journal of Medicine, Fort Worth

28: 803-874 (April) 1933

Acute Basilar Fracture and Cerebral Injury. E. R. Carpenter and A. D'Errico, Dallas.—p. 810.
*Spontaneous Subarachnoid Hemorrhage. A. J. Schwenkenberg, Dallas. —p. 814.
Development of Brain Tumor. C. Phillips, Temple.—p. 819.
*Acute Aplastic Anemia with Recovery. H. F. Hawkins, Dallas.—p. 822.
Practical Points in Treatment of Tuberculosis. J. A. Sevier, Colorado Springs, Colo.—p. 826.
Gastric Anacidity. M. O. Rouse, Dallas.—p. 830.
Peribronchial Glands as Focus of Infection in Systemic Disease. J. W. Torbett, Marlin.—p. 833.
Tumors Complicating Pregnancy. W. E. Massey, Dallas.—p. 838.
Obstetric Complications in the Hands of the General Practitioner. H. B. Tandy, Abilene.—p. 840.

Spontaneous Subarachnoid Hemorrhage.—Schwenkenberg reports fourteen cases of spontaneous subarachnoid hemorrhage in which he noted the following principal signs and symptoms: (1) history of occasional mild headaches over a long period of time; petit mal attacks; (2) sudden onset, unconsciousness, coma and convulsions, localized and generalized; (3) signs of meningeal irritation, increased intracranial pressure, severe intense headache, rigid neck, Kernig's sign and other pathologic reflexes; (4) few localizing signs, more frequently third and sixth cranial nerve signs; (5) slight pyrexia, increase in leukocyte count, which is often very high, and (6) bloody spinal fluid, rapidly turning brown and yellow, unless more bleeding occurred. The treatment included complete rest, an ice bag to the head and repeated spinal punctures, gradually reducing the intracranial pressure and at the same time removing the blood pigment. It appears that the blood pigment irritates the meninges and is responsible for more discomfort than the increased intracranial pressure.

Acute Aplastic Anemia.—Hawkins presents a case of aplastic anemia in which, after the administration of cholesterol, the reticulocytes rapidly rose to 5 per cent and then gradually dropped as the normal blood elements became fixed at a safe level. It is known that cholesterol acts as a protective agent against hemolysis, but further study may reveal that under certain conditions it can act as a stimulant to hematogenesis. He states that clinical signs of bone marrow depressions following the use of the arsphenamines are uncommon but of serious import, and that cases have been reported following the use of all the arsphenamine products except tryparsamide. The reason for these reactions is unknown. They do not depend on arsenical or benzene intoxication alone, and the amount of drug necessary for causation varies as does the time of onset of the symptoms. The pathologic change is primarily an aplasia of the bone marrow. Hemic and other organic changes are always secondary and, differing from the pernicious anemias, there is no abnormal destruction of the blood elements in the circulation. The four clinical and cytologic types (simple purpura, thrombocytopenic purpura, agranulocytosis and aplastic anemia) have all a common pathologic basis. Simple purpura is unimportant clinically, but its development absolutely contraindicates further arsphenamine medication. Thrombocytopenic purpura carries a 50 per cent mortality. Agranulocytosis and aplastic anemia are fatal in the great majority of cases. Treatment consists of repeated transfusions, general supportive measures, and possibly iron and cholesterol orally.

Yale Journal of Biology and Medicine, New Haven

5: 301-420 (March) 1933

The Scientific Activities of Frank Pell Underhill. H. G. Barbour, New Haven, Conn.—p. 301.
Oikonomia Medika. S. C. Harvey, New Haven, Conn.—p. 323.
Study of Fiber Tract Degeneration in Case of an Acoustic Neuroma. F. Beck, New Haven, Conn.—p. 343.
Question of Carbohydrate Production from Fat, with Especial Reference to Diabetes. Margaret Dann, New Haven, Conn.—p. 359.
Problem of Reflex Sensitivity to Light Studied in Case of Hemianopsia. E. R. Hilgard and G. R. Wendt, New Haven, Conn.—p. 373.
Hypersensitiveness and the Conditioned Reflex. G. H. Smith and R. Salinger, New Haven, Conn.—p. 387.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

8: 85-158 (April) 1933

Studies in Anemias of Infancy and Early Childhood: Part I. Introduction. L. G. Parsons.—p. 85.

Id.: Part II. Effect of Yeast on Nutritional Anemia in Rats. L. G. Parsons and Evelyn M. Hickmans.—p. 95.

Id.: Part III. Anhematopoietic Anemias (Deficiency Diseases of Erythron): Nutritional Anemia, and Anemias of Prematurity, Scurvy and Celiac Disease. L. G. Parsons and J. C. Hawksley.—p. 117.

*Copper in Treatment of Nutritional Anemia in Infancy. Helen M. M. Mackay.—p. 145.

Megaduodenum with Multiple Anomalies of Ileum: Case. R. H. Hunter.—p. 155.

Copper in Nutritional Anemia in Infancy.—Mackay attempted to demonstrate that iron and copper together produce a better response than iron alone in nutritional anemia by comparing a series of babies treated with both minerals and a series treated with iron alone. The comparison does not suggest that copper was of any benefit in this type of anemia. The types of response obtained with copper were like those customarily seen with iron and ammonium citrate alone, from which it seems fair to conclude that the deficiency affecting these babies was a deficiency of iron and not of iron and copper. The facts set forth when taken together indicate, in the author's opinion, that copper deficiency does not play any important part in the common nutritional anemia of babies. Such negative results, however, do not show that copper deficiency never occurs in babies suffering from iron deficiency. It is possible that a baby might be born with insufficient copper as the result of a maternal dietetic deficiency and so develop a nutritional anemia due to both copper and iron deficiency. However, iron salts with only minute and presumably insignificant traces of copper have been found effectual in the treatment of this anemia, but the indications are that copper deficiency is uncommon. When considering possible copper deficiency, the varying copper content of milk is of considerable interest. Human milk being richer in copper than cow's milk, it can be assumed that copper deficiency is more likely to occur in bottle fed babies. This is also true of ordinary cow's milk on the market as compared with the copper content of milk obtained under special precautions to prevent any copper contamination. Quam and Hellwig observed that, if milk is pasteurized in contact with copper, the copper content of milk, from 0.26 to 0.52 mg. of copper per liter of milk, before pasteurization was changed to from 0.6 to 0.7, and Görter and his co-workers observed that from 0.09 to 0.14 mg. of copper per liter of milk was changed to from 0.17 to 0.29. In the dried milk used for the control cases in the author's work on infantile anemia, estimations of copper in two samples gave 0.19 and 0.25 mg. of copper per liter of reconstituted milk, as compared with a value of from 0.12 to 0.18 mg. of copper per liter of fresh milk, as estimated by Elvehjem, Steenbock and Hart by the same technic; therefore it is possible that the copper contamination of cow's milk given to babies may actually be a factor of importance in preventing copper deficiency. The fact that large doses of iron salts are desirable in the treatment of anemia has been explained by some authors on the hypothesis that the traces of copper present in these salts are of fundamental importance; but, if the author's conclusions are correct, this hypothesis is incorrect.

Journal of Tropical Medicine and Hygiene, London

36: 109-124 (April 15) 1933

*Little Known Type of Chronic Colitis (Chronic Metadysentery). A. Castellani.—p. 109.

Prevalence of Rhinosporidiosis Among Sandworkers in Poona, with Brief Description of Some Histologic Features of Rhinosporidial Polypus: Preliminary Note. A. J. Noronha.—p. 115.

Chronic Colitis.—Castellani discusses a type of chronic colitis due to a group of intestinal bacilli called "metadysentery bacilli," and for which Cerruti has created the genus Castellanus. The condition starts in childhood or youth and lasts for years, in some cases apparently the whole life, and is characterized by recurrent attacks of simple diarrhea, with absence or only occasional presence of dysenteric symptoms, and periods of quiescence lasting for several months or even a year or two. During the periods of quiescence the patient suffers from vague abdominal discomfort, flatulence and constipation. He feels nervous, tired and disinclined to work. The objective examination of the abdomen reveals little; occasionally parts of the abdomen are tender on palpation, especially the region of the sigmoid, the appendix or the gallbladder. The symptoms in the latter region may be due to reflex irritation of the duodenum caused by the inflammatory changes in the lower portion of the colon. Each attack of diarrhea may begin suddenly, with severe abdominal pain or only abdominal discomfort; it lasts from a few hours to several days. The stools during the attack are fluid, brownish or yellow and frothy and contain mucus, but, as a rule, they do not contain blood. Fever of low intermittent or irregular type may be present for long periods with few or no intestinal symptoms. In fact, the metadysentery bacilli were first discovered in these cases. True dysenteric attacks caused by the same germs occur. Cystitis is not a rare complication, and in the urine metadysentery bacilli will be found either alone or with coli and coliform organisms. Jaundice may occur. In some cases the sigmoid colon is especially affected and all the symptoms of localized sigmoiditis may be present, with severe pain in the lower left quadrant and resistance on palpation. Occasionally, true acute appendicitis develops, due to the organisms producing the colitis. A positive diagnosis can be made only by bacteriologic search for the three principal types of metadysentery bacilli, viz., Bacillus ceylonensis A, ceylonensis B and madampensis. When the agglutination is higher than 1:80, repeated bacteriologic examinations of the stools will often reveal the presence of one of these three organisms. The author recommends complete rest in bed and a fluid diet. Milk is the best diet. Autogenous metadysentery vaccines are of value. The administration of a stock metadysentery vaccine containing Bacillus ceylonensis A, ceylonensis B and madampensis has given good results. It should be administered in small doses, from 2 to 10 minims (0.12 to 0.6 cc.) two or three times a week. Treatment should be continued for a period of at least six weeks. To ensure a permanent cure it is advisable to repeat the course after an interval of from two to four months, even in cases in which the colitis symptoms have completely disappeared, as the "cure" is often merely an apparent one, the infection remaining latent for long periods of time.

Medical Journal of Australia, Sydney

1: 449-480 (April 15) 1933

Shark Attacks in Australian Waters. V. Coppleson.—p. 449.

1: 481-510 (April 22) 1933

Short Account of Five Hundred Consecutive Cases of Labor. F. W. Carter.—p. 481.

Some Notes on Surgical Catgut. T. H. Small.—p. 487.

Tubercle, London

14: 337-384 (May) 1933

*Study of Acid Fast Organisms Other Than Mammalian Tubercle Bacilli Isolated from Disease in Man: Occurrence of Avian Tubercle Bacillus Infection of Men and Diagnosis of Avirulent Avian Tubercle Bacilli. A. Branch.—p. 337.

Some Clinical Types of Tuberculosis: III. L. S. T. Burrell.—p. 353.

Study of Acid Fast Organisms.—Branch studied a number of acid fast organisms isolated from man which had been reported as nonmammalian tubercle bacilli. Some of these strains of nonmammalian tubercle bacilli appear to belong to the avian group, while others are not type tubercle bacilli but probably new strains of pathogenic acid fast bacteria. The author states that, in spite of the fact that a strain of avirulent avian tubercle bacilli does not produce progressive tuberculosis in the fowl, one should feel justified to conclude by its cultural characteristics and its ability to form tuberculin, by the lesions produced in rabbits and by its ability to absorb agglutinins from a virulent avian tubercle bacillus rabbit antiserum that this strain is an avian tubercle bacillus of diminished virulence. These strains cause the greatest difficulty in diagnosis and one must guard against considering them nontubercle bacilli. Avirulent avian tubercle bacilli are capable of forming tuberculin and of sensitizing fowls to a known tuberculin. Inoculation of the common white mouse has proved a useful aid in diagnosing acid fast strains which are not type tubercle bacilli or saprophytes. After large intraperitoneal doses, multiple abscesses develop in the kidneys.

Presse Médicale, Paris

41: 1041-1056 (July 1) 1933

*Ammonium Chloride for Treatment of Scleroderma. R. Leriche and A. Jung.—p. 1041.
Syphilis Unrecognized by Error of Biopsy. Gougerot.—p. 1041.
Subtrapezian Ganglions and Neuralgias of Brachial Plexus of Dental Origin. J. Veyrassat.—p. 1043.

Ammonium Chloride for Treatment of Scleroderma.—Leriche and Jung successfully treated a case of scleroderma of the face in a woman by the daily administration of 3 Gm. of ammonium chloride in combination with an acid forming diet. After twenty days of this therapy, the sclerodermatous plaques were softened and decreased in size and the itching had entirely disappeared. The calcemia had decreased from 0.103 Gm. to 0.089 Gm. and the general condition of the patient was improved. Discontinuation of the ammonium chloride and substitution of thyroid and parathyroid extract (previously used unsuccessfully) caused a recurrence of the symptoms, but a return to the acid diet and ammonium chloride therapy caused the symptoms to disappear again. A similar result was obtained with ammonium chloride in another case. The acidifying diet increases the elimination of calcium in the urine, and the acidosis, produced by large doses of ammonium chloride, increases the calcium elimination in the same manner.

Archiv für Gynäkologie, Berlin

153: 359-615 (June 15) 1933

Treatment of Puerperal Pyemia (Ligation of Veins). H. Küstner.—p. 359.
*Development of Female Genital and Peritoneal Tuberculosis in Primary Infection of Intestinal Canal and Significance of Retrograde Lymphogenic Mode of Infection. H.-U. Hirsch-Hoffmann.—p. 375.
Further Investigations on Rapid Pregnancy Reaction on Sexually Mature and on Pregnant Mice: Nature of Beginning Transformation. H.-U. Hirsch-Hoffmann.—p. 394.
Structural Changes of Plasma Protein in Puerperal Fever. A. von Latzka.—p. 408.
Carbohydrate Metabolism During Pregnancy and Its Sequelae (Sugar and Diastase Determination in Blood). P. Goldschmidt-Fürstner.—p. 417.
Metabolic Actions of Sex Hormones on Sex Organs. S. Aschheim and H. Gesenius.—p. 434.
Protein Metabolism and Renal Function of Organism During Pregnancy and During Early Puerperium. O. Bokelmann and W. Scheringer.—p. 447.
Analysis of Blood Radiation According to Gurwitsch. H. Gesenius.—p. 468.
Feebleness of Labor Pains and Ecbolics. L. Bickel.—p. 482.
Somatic Sequelae and Accompanying Manifestations of Interruption of Pregnancy by Abdominal Uterotomy with Simultaneous Sterilization. Mary Stutz.—p. 512.
*Connections Between Premature Detachment of Placenta and Renal Diseases. J. Batisweiler.—p. 536.
Developmental Disturbances of Pelvis in Feebleness of Labor Pains. H. Fedtke.—p. 553.
*Symptom-Free Time of Cancer of Uterus. F. Stähler.—p. 561.
Alimentary Lipemia During Pregnancy. W. Raab.—p. 571.
Picture Technic of Lateral Pregnancy and Pelvis Exposures: How to Obtain Evenly Exposed Roentgen Films by Equalizing Ray Filtration. A. Pickhan.—p. 578.
Permeability of Placenta for Lead. Anny Baumann.—p. 584.
Masculine Pseudohermaphroditism: Case. R. Cadiz and A. Lipschütz.—p. 593.
Animal Experiments on Relations Between Pregnancy and Thyroid. K. J. Anselmino and F. Hoffmann.—p. 612.

Female Genital Tuberculosis.—Hirsch-Hoffmann doubts the possibility of a primary tuberculosis of the female genitalia and he points out that even the pathogenesis of the secondary tuberculosis of the female genitalia is not fully understood as yet. Although different modes of infection such as contact, intracanalicular metastasis (for instance from the peritoneum to the uterine tubes), lymphogenic infection and hematogenic infection have been generally recognized, the opinions still differ about the frequency of these four modes of infection. The author experimented on rabbits and made careful studies on some of the nurslings who died as the result of the ill fated tuberculosis vaccination in Lübeck. The observations on these nurslings are especially noteworthy because the infection originated in the intestinal tract and not, as is usually the case, in the respiratory tract. The author reaches the following conclusions: 1. In a severe primary tuberculous infection of the intestine, the peritoneal tuberculosis develops primarily by way of the lymph channels. 2. The same applies, although in a lesser degree, to tuberculosis of the female genitalia. In these cases the lymphogenic and the hematogenic modes of infection are of about equal importance. 3. The involvement of the connective tissues surrounding the genitalia is particularly frequent in primary intestinal infection, developing lymphogenically either from the intestine or perhaps also from the peritoneal tuberculosis. 4. A retrograde lymphogenic spreading of tuberculosis for a short distance and in case of disturbances in the discharge of the lymph may be considered possible. 5. The intracanalicular development of tuberculosis of the female genitalia from the peritoneum is of less importance than the lymphogenic and hematogenic infection.

Premature Detachment of Placenta and Renal Diseases.—Batisweiler shows that renal disease which may lead to anuria is frequently present in women in whom the placenta is detached prematurely. The renal disorder has the aspects of an interstitial nephritis in which the degenerative changes are slight. Edema is generally absent, the rest nitrogen and the blood pressure are increased, but the chloride content is normal. In the pure form, eclampsia is generally absent. From the standpoint of pathologic anatomy it is noteworthy that there may be a chronic suppurative inflammation or a leukocytic infiltration with edematous swelling in the interstitial portions of the kidney. The therapeutic problem is as yet unsolved. Decapsulation may be successful, but because this serious intervention has failed in some instances it is now generally rejected. The author considers more promising the administration of large amounts of fluid by the intravenous, subcutaneous, oral and rectal routes. The daily administration of from 5 to 6 liters of fluid will keep the blood pressure relatively high, which is an important factor in the therapy, because the high pressure assumes the rôle of defense mechanism against anuria. For this reason, frequent determination of the blood pressure is advisable. The author shows that two types of renal disturbances may develop in the course of gravidity: (1) the form of nephrosis in which sodium chloride and water are retained and in which edema exists, and (2) the form of nephritis characterized by nitrogen retention and by retinitis. He states that other authors have succeeded in producing premature detachment of the placenta and interstitial nephritis in animal experiments.

The Symptom-Free Time of Cancer of Uterus.—In studying a material of 200 cases of uterine carcinoma, Stähler found that the period in which there are no symptoms averages two and seven-tenths months. In seven patients in whom the carcinoma was accidentally discovered, the symptom free period was four and three-fourths months. Even if advice has been sought as early as possible, every eighth woman (25 out of 200), who has carcinoma of the uterus, is in an already inoperable condition at the time treatment is begun, for the cancer has been latent for four and one-half months. An influence of the age of the patient on the duration of the latent stage could not be recognized.

Dermatologische Wochenschrift, Leipzig

96: 865-908 (June 24) 1933

Ramel's Test for Demonstration of Tuberculous Nature of Cutaneous Rheumatoids and of Lupus Erythematodes. R. M. Bohnstedt.—p. 865.
Syringoma: Case. J. Wendlberger.—p. 868.
Occupational Signs in Glaziers, Watchmakers, Barbers and Day Laborers. H. Mierzecki.—p. 871.
*Urethritis Pseudodiphtherica with Articular Involvement: Nongonorrheal Urethritis. Smolka.—p. 876.
Treatment of Gonorrhea in Women. P. J. Metzmacher.—p. 881.
Is It Malpractice If Physician Decides Against Syphilis Without Resorting to Blood Test? C. Bruhns.—p. 883.

Nongonorrheal Urethritis.—Smolka maintains that nongonorrheal urethritis has been increasing in recent years. He thinks that the increased incidence is due partly to the fact that now more cases are etiologically explained, but to a greater extent to the wider use of contraceptives and to the application of chemical antibacterial substances, which are employed for the prevention of venereal infections. He mentions various forms of nongonorrheal urethritis and discusses particularly the form caused by a pseudodiphtheria bacillus. After describing the symptomatology of this form of urethritis, he points out that the male urethra is usually infected during coitus, and that pseudodiphtheria bacilli are more frequent in the female genitalia than is generally believed. The treatment of urethritis pseudodiphtherica is difficult, for the condition frequently proves refractory to various measures. This is illustrated by a case report, which is noteworthy because articular metastases developed.

Deutsche medizinische Wochenschrift, Leipzig

59: 949-988 (June 23) 1933

External Operations on Larynx. G. Hofer.—p. 949.
*Arterial Hypertension and Venous Pressure in Human Beings. C. Ernst.—p. 952.
*Results of Vitamin A Treatment During Childhood. F. Erben.—p. 954.
Disturbances in Carbohydrate Metabolism Produced by Anesthesia and Their Clinical Significance. H. Heller and P. Nathan.—p. 956.
Light General Anesthesia and Short Anesthesia in Children with Sodium Salt of a Barbituric Acid Derivative. E. A. Voss.—p. 958.
Hematologic Studies in Malignant Diphtheria. H. Mommsen.—p. 960.
Permanent Vertigo. K. Mendel.—p. 960.
Peculiar Change of Duodenum and Upper Jejunum. H. J. Tiedemann.—p. 964.
Acute Yellow Atrophy of Liver Ending in Recovery. Tellgmann.—p. 965.

Arterial Hypertension and Venous Pressure.—Ernst determined the venous pressure of fifty patients with arterial hypertension and never found a noticeable increase, whether the hypertension was of the essential type or nephrogenic, and whether the arterial pressure was extremely high or of medium severity. He examined only those patients in whom circulatory decompensation could be excluded, and he thinks that, considering the comparatively large number of cases, his observations can hardly be accidental. In discussing the genesis of increased venous pressure, he expresses the opinion that it can be traced to an incipient cardiac insufficiency.

Results of Vitamin A Treatment During Childhood.—Erben employed a standardized vitamin A preparation of high potency in the treatment of forty nurslings and small children. The children treated were primarily dystrophic nurslings with relapsing catarrhal infections and rickets. The dose of vitamin extract was five drops twice daily, and the duration of the treatment averaged twenty-seven days with a maximum of sixty-six days. Of twenty-three children, seventeen showed a considerable increase in weight, eleven of whom had been treated before without this result. In two instances the weight increase did not set in until after the vitamin treatment had been discontinued. The incidence of catarrhal infections was not influenced by the vitamin treatment, but their course was generally less severe and the disturbance they produced in the general condition and the decrease in weight was less. The constitutional eczema of nurslings was not noticeably influenced by the vitamin A treatment.

Monatsschrift f. Geburtshülfe u. Gynäkologie, Berlin

94: 209-320 (June) 1933

Remarks and Suggestions on Draft of Bill for Eugenic Sterilization. L. Seitz.—p. 209.
Menstrual Cycle and Lipoid Content of Uterine Mucous Membrane. Ingeborg Gohlisch.—p. 223.
*Criticism of Fatalities Caused by Tribrom-Ethanol. H. Dienz.—p. 227.
*Spontaneous Amputations by Amniotic Threads May Be Caused by Primary Inferiority of Ovum. L. Seitz.—p. 236.
Vaginal Injuries. F. Hinrichs.—p. 240.
Significance of Six Phasic Microsedimentation of Erythrocytes for Gynecology in Comparison with Macrosedimentation According to Linzenmeier. E. W. Winter.—p. 245.
Recognition and Treatment of Carcinoma. O. von Franqué.—p. 254.
Cerebral Embolism as Sequel of Criminal Abortion: Favorable Course of Case. K. Fuge.—p. 273.
Differential Diagnosis of Abdominal Hernia and Tumors in Hernial Regions. O. Heseler.—p. 277.
Vaginal Extirpation of Uterus During Delivery. W. Rosenstein.—p. 282.

Criticism of Fatalities Caused by Tribrom-Ethanol.—Dienz describes the clinical history and the postmortem examination of a woman who died following anesthesia with tribrom-ethanol. Although it appeared at first that the death of the patient was caused by the anesthesia, the postmortem examination revealed that this was not the case. 1. A respiratory disturbance, which generally predominates in the toxic injuries caused by tribrom-ethanol, was not present in this case. 2. The necropsy revealed no organic changes that could be traced to tribrom-ethanol, and the fatty degenerations that were observed were within the limits of the general status of the obese patient. 3. The disturbance of the consciousness, which persisted in this patient for several days, has never been observed in tribrom-ethanol fatalities and therefore is probably not a result of the anesthesia. Death was caused by embolic hemorrhages and by softening processes in the brain, originating in a verrucose relapsing endocarditis of the mitral valve. That such a process of cerebral softening may lead to prolonged disturbances in the consciousness is well known. The presence of old foci in the brain indicates that the patient had had embolisms before, and the author considers a causal connection between the rectally administered tribrom-ethanol and the embolic processes doubtful. Nevertheless, he thinks that in circulatory and cardiac disturbances it is advisable to resort to another anesthetic method. Other contraindications to the use of tribrom-ethanol are diseases of the liver and of the kidneys, serious pulmonary disturbances, severe cachexia and thyroidal disorders, particularly exophthalmic goiter. Smaller doses of the anesthetic are advisable in aged persons, in obesity, in dehydration and after great loss of blood. However, aside from these restrictions the author intends to continue the use of tribrom-ethanol anesthesia, since he has had only favorable experiences with it. His main object in reporting this case was to show how easily a fatality may erroneously be ascribed to this anesthetic, and he demands a careful postmortem examination in all such cases.

Spontaneous Amputations by Amniotic Threads.—According to Seitz, the presence of amniotic threads or of thread furrows indicates only the mechanical process of spontaneous amputation and not the primary cause of it. He considers two possible origins; namely, the primary inferiority of the ovum or developmental disturbances in the mother, such as inflammatory processes, circulatory disturbances and changes in the humoral-hormonal combination. He thinks that the majority of gynecologists are of the opinion that amputation produced by amniotic threads is a result of the latter factors (developmental disturbances in the mother). The problem has not only a theoretical but also a practical significance, for, if disturbances in the mother are the cause, attempts have to be made to cure them, whereas, if the amputation is due to a primary deficiency of the ovum, it cannot be influenced, unless it is possible to change one of the two factors (maternal and paternal) determining the development of the fertilized ovum. The author was able to observe a case which proves that amniotic threads are caused by a primary inferiority of the fertilized ovum. He reproduces a photograph of a family in which four children show malformations of arms and legs; that is, amputations produced by amniotic threads. The parents of these four children were brother and sister. The same picture shows two other entirely normal children who were the offspring of the same man but of another woman, who was not related to him by blood. The fact that, with the exception of the amniotic amputations, the four children are healthy proves that the primary deficiency was limited to that part of the ovum from which the amnion develops. This observation shows that marriages between relatives should be avoided.

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*Experimental Investigations in Explanation of Immunity in Tuberculosis: I. O. Thomsen and K. Pedersen-Bjergaard.—p. 661.
Bartonella Infection in White Rats: Preliminary Report. G. Alsted.—p. 699.

Immunity in Tuberculosis.—Thomsen and Pedersen-Bjergaard followed the course of primary infection with a human strain of tubercle bacilli in a series of guinea-pigs, especially at the place of inoculation and in the regional glands. The strain was not maximally virulent in spite of the small lethal minimal dose of 1:100,000,000, probably because of protracted cultivation on artificial mediums. Abscess formation occurred at the place of inoculation, usually with healing sooner or later. There was also constant abscess formation in the regional glands, with metastatic infection of spleen, lungs and liver. The response of the infected organism consisted of two reactions, leukocyte migration (abscess) and formation of specific tuberculous granulation tissue. The authors state that the first, an expression of the organism's relative superiority, also depends on the quantity of tubercle bacilli, a certain number being assumed to be necessary to cause leukocyte migration. When the number of tubercle bacilli is too small, formation of tuberculous tissue occurs. The hypersensitivity reaction apparently plays a part only in infection with considerable quantities of tubercle bacilli. Preliminary treatment with lipoids causes a marked increase of phagocytosis in the regional glands but also greatly promotes the increase of tubercle bacilli in the glands. Preliminary treatment with killed bacilli has a similar but weaker effect.